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SUMMER 2019

Maria Demertzis, André Sapir and Guntram Wolff present a strategic agenda for the new EU leadership

Abhijit Mukhopadhyay considers where India sits in an era of bilateral and plurilateral FTAs

Sofia Baliño examines a new investment facilitation framework in a tenuous WTO landscape

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No time to wait

Today's economic risks and challenges are substantial — a trading system in crisis, slowing global growth, rising financial risks, growing geopolitical tensions, to name a few — they are not at the levels of ten years ago. At least not yet. Since 2008 the United States has switched from promoting multilateralism, cooperation, global rules and global institutions.

Many western countries are political shadows of their former selves. The domestic political strength of the leaders of the United Kingdom, Germany, France, Italy, Canada, and many others has been compromised, with a backlash against multilateralism and global cooperation.

The global financial crisis demonstrated to the world that many institutions were not fit for purpose, that they may be unable to adapt to the rapid changes in the global economy.

Globalisation has led to greater competition. The explosion of advanced technologies now means that knowledge-pools and resources have connected all over the planet, levelling the playing field as never before. There is

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specifically a fourth revolution of humanity occurring where the people who historically could not be reached are now being reached by technology.

This technological disruption is changing how globalisation affects different regions of the globe. It is now time for the institutions of the 20th century to be reformed to meet the challenges of the 21st century. It will require a change in the mindsets of the western elite, who are trying to slow the rate of change by raising non-tariff barriers. They need to look to the future rather than trying to preserve the status quo.

There is a chasm between the west (and Europe in particular) and the leapfrog countries from China to India to Kenya to Colombia. The reason the latter countries are leapfrogging Europe and America is that they don't have economies ingrained in the last century. Meantime, most of the European and American business and regulatory infrastructure was implemented in the 20th century.

Bottom-line: where there are vested interests to keep legacy in place, a change to the modern world is unlikely to happen in the near-term. Countries do best when the world comes together to agree collectively on the rules for trade, investment, finance, people-to-people links and dispute resolution and therefore have a paramount self-interest in a strong, effective multilateral organisations.

It is time for the economies of China, India, of Africa, of Australasia and a post-Brexit United Kingdom to create and enable a multilateral infrastructure that looks to the future as one of opportunity and human development. Delivering reform will help address the pressing challenges of today. This is not a time to wait. ■

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A strategic agenda for the new EU leadership

Maria Demertzis, André Sapir and Guntram Wolff present a memo to the presidents of the European Commission, Council and Parliament, focussing on the most important economic questions at EU level

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You inherit a relatively healthy European economy, but you face three formidable challenges in the next five years. First, you must define Europe's place in an increasingly bipolar world driven by a geostrategic rivalry between the United States and China.

You should avoid protectionism and instead strengthen Europe's technological, financial and security capacities. You should continue to support multilateral institutions and stand ready to retaliate against trade aggression. Second, global warming is a reality and temperatures appear to be rising faster than forecast.

You need to impose higher prices on greenhouse gas emissions, guide a deep transformation of our economies, minimise the resulting social fallout, ensure border carbon adjustment and globalise the EU's decarbonisation. Third, you need to manage the economy and EU cohesion.

The main worry is a deep recession or even a new crisis. Guide European policymakers on the use of proactive fiscal policy, reform the governance of the euro area and address tax fraud and evasion.

State of affairs

First, the good news: you face a much more benign macroeconomic situation than when your predecessors assumed office five years ago. Then, the European Union was just emerging from the worst economic and financial crisis in its history. Economic growth was still very weak, unemployment was close to 12 percent in the euro area (and just above 10 percent in the EU), and the public debt-to-GDP ratio was above 90 percent.

Now, after five years of economic growth at an average of roughly 2 percent, unemployment is down to about 8 percent in the euro area (and less than 7 percent in the EU), and the debt-to-GDP ratio is approaching 80 percent.

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However, the global landscape has shifted dramatically in the last few years. A G2-like world, characterised by a broad geopolitical confrontation between the United States and China, has become a reality. Five years ago, the extent to which Sino-US relations have deteriorated was not yet obvious, and it was not clear that the EU would have to define clearly its own way forward.

China's fast rise is a tremendous achievement. It has lifted millions out of poverty and China is increasingly becoming an engine of global innovation. But the Chinese economic and political model also poses a challenge to Europe and the West in general.

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If the trade conflicts initiated by President Trump had been only about trade, the EU would have been well-placed to defend its interests

In some quarters, China's illiberal political model is even viewed as an alternative to our sometimes slow-acting liberal democracies. China is an important market and economic partner but also poses an economic challenge. Meanwhile, the US has become a less reliable partner than it was five years ago and some even doubt how strongly it will defend liberal democracy.

The last five years have also seen continued increases in global greenhouse gas emissions (Figure 1), despite the 2015 Paris Agreement. The frequency of extreme weather events has increased and the world has become warmer (IPCC, 2018).

Increasingly, scientists point to positive feedback-loops where the increased temperature leads to further increases in global temperature[1]. In that light, the Paris goals might even be insufficient[2]. So far, the EU has not managed to reduce its greenhouse gas emissions convincingly despite the Paris Agreement being politically widely accepted.

It has not strengthened its policy framework necessary for a profound and deep transformation of our economy, which is simply not happening fast enough. Biodiversity was not a priority for your predecessors and has been allowed to deteriorate in Europe[3].

Though EU employment has increased substantially and income inequality remains less pronounced than anywhere else in the world, inequality and exclusion remain important concerns. Youth unemployment is still worryingly high in some EU countries, resulting in the social disenchantment of an entire generation.

More broadly, one worrying tendency in many EU countries has been cuts to the top tax rates levied on companies, wealth, inheritance and high incomes[4]. Low progressivity and a high tax burden on the working middle class to

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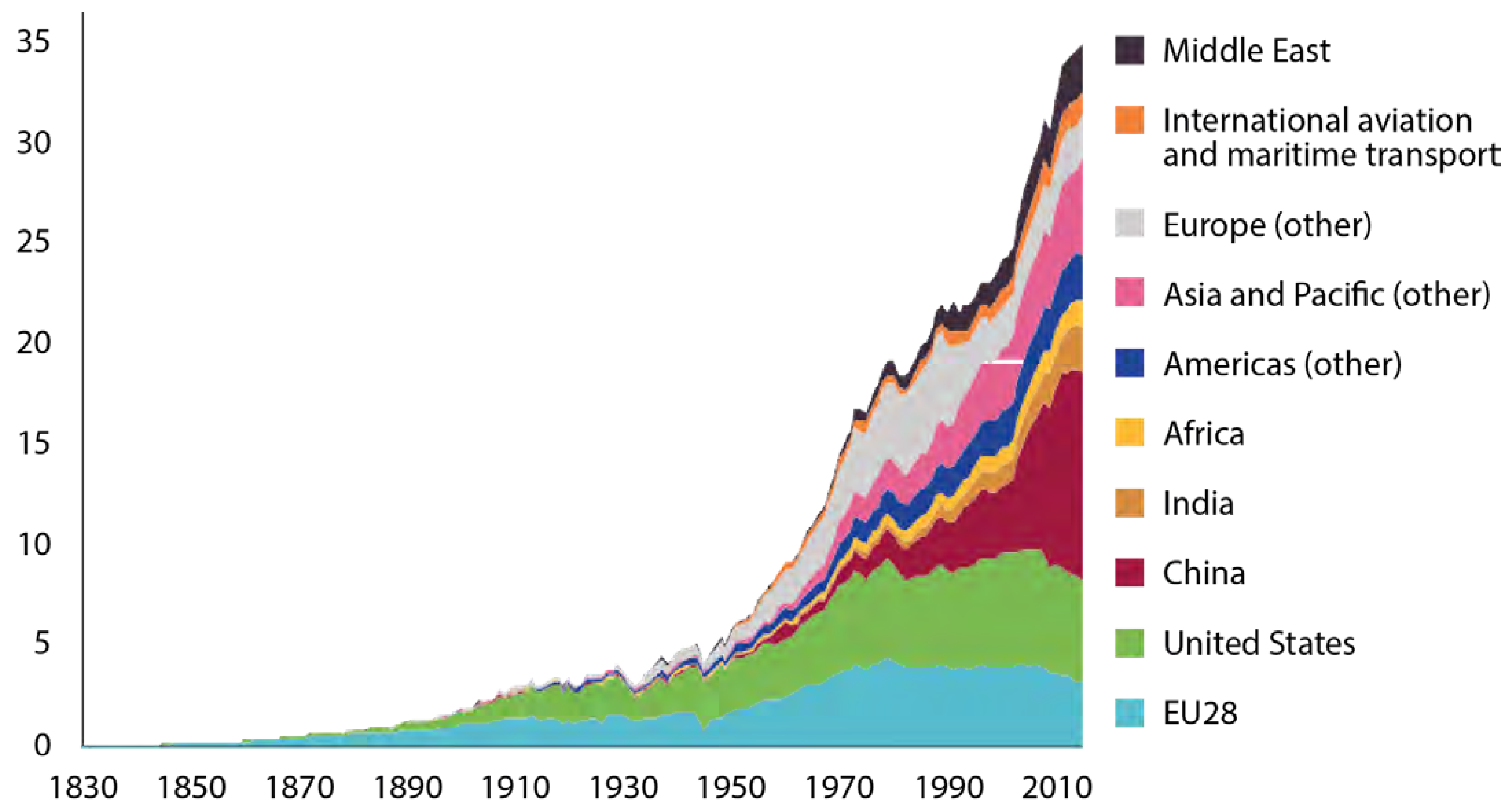
Figure 1. Annual CO_2 emissions by world region



Source: Carbon Dioxide Information Analysis Center. Note: Annual CO_2 emissions measured in billion tonnes per year. Emissions data have been converted from units of carbon to CO_2 using a conversion factor of 3.67. Regions denoted 'other' are given as regional totals minus emissions from the EU28, USA, China and India.

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fund Europe's social market economy nurture a sense of injustice in society. A key challenge is to reconcile equity and efficiency[5].

Institutionally, perhaps the most significant change of the last five years has been the transformation of the Commission, traditionally viewed as the guardian of the treaties, into an explicitly political Commission, led by a strong president who claimed an electoral mandate to lead. This controversial change of orientation has allowed the Commission president to a greater extent than before to exercise leadership and impose priorities on the entire Commission.

The centralisation of communication and political decision making has been seen by Commission staff as a major change compared to the previous Commission, allowing the Commission to set the EU's agenda (Kassim and Connolly, 2018). This institutional change is an important modification of the way the EU works.

The EU and national institutions are confronted with a lack of trust. The situation for the EU has improved in the last five years, with trust increasing and support for the EU higher among the young than the population overall, but the number of citizens distrusting the EU still exceeds those who trust the EU. This is particularly visible in some southern European countries[6]. Certainly one of the main reasons for this is the lack of convergence and the severe recessions that parts of the south of Europe experienced.

Such lack of convergence and trust risks undermining the sustainability of the euro area and the EU. Furthermore, traditional political parties are losing ground, resulting in a more pluralist political system. Elections also confirm certain established cleavages of voter preferences across countries, which might make compromises more difficult in future.

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The significantly higher turnout in the 2019 European elections is a sign of a renewed demand from citizens that Europe should deliver on the big topics of our times. Citizens want the EU to prioritise maintaining peace, creating jobs and tackling climate change[7].

More than three quarters of citizens consider the fight against terrorism, tackling unemployment and protection of the environment as the three key priorities for the EU, but the first two priorities have declined in importance (Eurobarometer, 2018).

Moreover, citizens are broadly divided on whether the EU should wait until all countries are ready before proceeding with new initiatives, or whether some countries should move ahead.

Citizens, however, are convinced that when it comes to the big international questions, such as dealing with China, Russia and the United States under President Trump, the EU should speak with one voice.

Challenges

Three main challenges await you, coinciding with the areas that citizens increasingly believe the EU should deliver on:

(1) the EU's capacity to establish itself as a stronger and more independent global player;

(2) a climate and environmental strategy that delivers;

(3) the EU's capacity to increase cohesion, boost employment and react to a deterioration in the economic situation.

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Europe's place in the world

The first, and perhaps defining, challenge of your presidencies will be to ensure that Europe still has a place in a world which is rapidly shaping into a bipolar system dominated by China and the United States.

Citizens clearly want the EU to act on issues of global importance and understand that the member states in which they live, even the biggest, cannot act alone. Reinforcing the EU's capacity to be a global force is therefore an opportunity to demonstrate the EU's significant added value.

By some key economic measures, in particular GDP and trade, the EU is on par with China and the United States, and far bigger than any other player. Its single voice on trade and standards commands respect in global bodies such as the World Trade Organization (WTO), and bilaterally with partners, including China and the US.

If the trade conflicts initiated by President Trump had been conflicts about trade only, the EU would have been relatively well placed to defend its commercial interests. But the reality is that these trade battles are part of a geopolitical rivalry between China and the United States, and when it comes to geopolitics, the EU is ill-equipped.

The EU's weakness stems in part from its lack of a defence capability. Without the US participating in Europe's defence, European countries would be vulnerable to foreign aggression.

Europe's weakness in this area is also the result of its lack of strength in some key technologies, including digital hardware and software systems that are vital for security. A number of globally-important networks (such as financial or data networks) have developed in an asymmetric way, giving the states with physical and legal jurisdiction over them the ability to extract information and leverage power.

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These networks tend to have central nodes of influence in the US and increasingly in China – while the EU still has an institutional weakness in terms of exercising power over those networks it can influence (Farrell and Newman, 2019).

The EU has much to lose from the emergence of a bipolar world, and from the rivalry between China and the United States. The threat is to both the EU's economic interests and its political values. The EU is closely intertwined with the United States and China, which are its two main trade and investment partners. A Sino-US trade war is sure, therefore, to have significant negative consequences for the EU economy.

But the bigger consequences are political. The two rival powers will aim to lure the EU into their camps because of the EU's economic assets, and in particular its large market. The EU obviously wants to preserve its values of democracy and the rule of law, social justice and multilateralism, and given its history and values, is clearly politically much closer to the US than to China.

However, the rejection of multilateralism by the Trump administration has made the EU uncomfortable with the US position, and has opened the door to closer political relations with China, which has assumed the mantle of multilateralism.

It would be a nightmare scenario for the EU if it had to choose between liberal democracy and the United States on one hand, and multilateralism and China on the other. In both cases, the EU might have to compromise on social justice, which is practiced neither by China nor by the United States.

To avoid compromising on our political values, you need to succeed in escaping the bipolar scenario. You should be under no illusion. Unfortunately, the bipolar scenario is by far the most likely, but it is also the most dangerous

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for Europe, and probably for other parts of the world which share our values. You should aim not only to strengthen Europe but also to support all multilateral frameworks that can help offset a bipolar scenario.

Important further elements of Europe's strategy in defining its place in the world are the relationship with our neighbouring continent, Africa, and the EU's strategy on migration. Both topics are clearly important priorities for EU citizens.

Climate and the environment

When it comes to climate change and the environment, your challenge will be to overcome vested interests, and manage the social and economic fallout of a truly transformative agenda. Citizens want you to address this pressing challenge.

At the same time, they aren't likely to accept the consequences of strong climate action easily. The yellow-vests movement in France serves as a powerful reminder that addressing the social consequences of climate policies needs to be an integral part of a successful climate strategy.

Vested interests will want to prevent you from addressing climate change. But you should be clear: climate change is a dramatic reality for humanity. Industrial economies have been leading contributors in the past and have a moral obligation to address their emissions head-on.

Moreover, by doing so, they produce a template that others can follow and that in itself can also be a business opportunity. Failing to address the challenge head-on would be inacceptable to citizens, and could also mean that the EU loses out on key technological developments – such as electro-mobility – that will shape the future.

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Meanwhile, a powerful lobby will try to prevent you fundamentally changing the EU's common agricultural policy – which you must do if you want to restore lost biodiversity in Europe (Pe'er *et al*, 2014) and free financial resources for more forward-looking expenses.

Growth and convergence

The EU's long-term prosperity and sustainability depends on innovation, growth and convergence. Those countries with a serious productivity growth challenge typically have comparatively weak institutions and perform less well in education, innovation and research.

But without more growth in those countries, debt dynamics will be unfavourable. Your challenge is to find ways to contribute to convergence and growth, while most of the levers to do so are at member-state level.

The challenge could be compounded by deterioration in the economic situation and even the re-emergence of crisis. A recession would increase unemployment, which even now after many years of recovery, remains a key concern for citizens.

Beyond the macroeconomic ups and downs, you could face a sovereign debt crisis in a euro area country that would require emergency summits and assistance. But you have relatively few instruments under your control to deal decisively with such a situation.

There is no euro area budget to use for countercyclical fiscal policy and the current negotiations are unlikely to lead to a budget of macroeconomic relevance. The main truly European institution that could respond, the European Central Bank, would have to find new tools because of low interest rates and the political limits to further

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bond purchases. Meanwhile, the main euro area financial-assistance programmes are in the hands of an inter-governmental institution, the European Stability Mechanism, and the member states

You must aim to complete the euro area's governance set-up to make it more robust. This is all the more important as a badly functioning euro area also has long-term social consequences.

Policy recommendations

Europe's place in the world

When it comes to strengthening Europe's position in the world, you will have to design and drive a transformative agenda for Europe. In trade policy, your task is relatively well-defined: you need to vigorously defend the multilateral trading system, including by fostering its reform, while being ready to retaliate against protectionist measures.

But to be able to act and respond on a more equal footing you need to reduce dependence on China and the United States in some key strategic domains while strengthening the EU's own capabilities. This will require tackling three issues:

The EU's capacity to innovate and remain a technological leader: you should strengthen investment in R&D, education and improve conditions for innovation and conditions that encourage key players in networks to locate in the EU.

For example, the platform economy is dominated by the American GAFA (Google, Apple, Facebook and Amazon), and increasingly by the Chinese BATX (Baidu, Alibaba, Tencent and Xiami). Technological capacity influences the structure of global networks, which in turn is important for the projection of power[8].

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But if the EU cannot trust the US to not turn its network hegemony against it, it needs to revisit its strategy and aim to attract key network nodes and hubs and to create institutional capacity to deal with those hubs.

The EU does not lack large digital platform companies because of the EU's competition policy. It lacks such companies because of a fragmented market, including a fragmented market for risk capital, and because of lack of public infrastructure, meaning that, all too often, innovative young companies go to the US to grow.

You should continue the work that your predecessors started to deepen and complete the single market, strengthening the digital single market in particular, exploiting data-privacy rights and developing a European approach to the digital age with the citizens at the centre.

The effectiveness of the EU's competition policy is globally recognised. Relaxing current policies to encourage the creation of large European champions might lead to higher domestic prices, greater inequality and rather limited benefits in terms of innovation and growth[9].

By contrast, tough competition typically spurs innovation. While we are not in favour of subsidising specific large firms, there might be a case for supporting them when they compete in third countries with subsidised firms from other jurisdictions. Ideally, however, this issue should be addressed through improvements to, and better implementation of, the WTO rules on subsidisation. There might also be a case for revising the definition of dynamic markets.

The EU should have an industrial policy that goes beyond the single market strategy. A deeper single market is critical for the EU's economic strength. But a clear view of which sectors will drive future innovation is also necessary given the targeted Chinese approach (European Commission, 2019).

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The EU needs to develop a methodology to identify key sectors of relevance and go beyond the current ad-hoc approach to supporting specific industries. In the US, three federal institutions (the Defense Advanced Research Projects Agency, National Institutes of Health and National Science Foundation) play crucial roles in pushing forward the frontier of knowledge, and enabling private-sector R&D in key areas.

Similarly, the EU should use the EU budget more than today (roughly €10 billion in 2018) to boost digital hardware and software systems, including artificial intelligence, which are critical for autonomy and even security.

The second area where you need to act to boost the EU's role in the global economy is the euro's role as a global currency. The euro is already a global currency but its role is below potential on account of the incomplete economic architecture of Economic and Monetary Union. To change that, you will need to make concrete progress on EU governance. We will return to this in our third set of recommendations.

Third, you need to increase Europe's capacity to safeguard its own security. This is not a question of a 'European army'. Instead it is about being able to defend EU territory by collaborating in case of aggression and to intervene in cyberwar, intelligence operations and small rescue operations. Investments in the range of €100 billion to €300 billion could be needed if Europe wants to have sufficient defence capabilities without US involvement (ISIS, 2019).

The EU should remain a peace project, capable of defending itself but without any ambition to project force in military adventures in third countries[10].

This gives rise to important organisational questions that you need to answer. How would EU countries support each other in case of military aggression? Should the EU create a 'security council' which includes even some non-

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EU countries (potentially the UK) and is capable of taking military decisions outside of NATO? How can the various weapon systems of national armies be made compatible?

Can the Permanent Structured Cooperation (PESCO) process be further advanced and procurement be unified? Can EU countries form joint capabilities to counter cyberattacks and what capacity does the EU have to deal with targeted fake-news campaigns that undermine our democracies? You will need to exercise leadership in these domains but not pursue unrealistic and even undesirable goals.

The question of defence is important because, unfortunately, the EU cannot fully chart its own course in trade, technology and investment policies without ensuring its own security. But, as you know, this view is not accepted equally by different EU countries and several countries will not be ready to question reliance on NATO as the main defence cooperation agreement. In our view, you will therefore have to accept a certain degree of multi-speed in this domain[11].

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Europe's geopolitical weakness is partly the result of its lack of strength in some key technologies; leverage over networks matters

Finally, we consider it important that you strengthen the EU's Africa policy. Africa is connected to Europe in many ways. As our direct neighbour, its economic health and political stability are core EU interests. This topic cuts across trade, investment, development, climate, energy and migration policies.

You will need to further develop your migration strategy, which is still a great concern for many citizens and goes beyond the relationships with African countries. This strategy cannot be narrowly focused only on illegal migration but needs to be comprehensive and cover also legal migration and its implications for the internal functioning of the single market.

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Climate and the environment

The EU is already politically committed to reducing greenhouse gas emissions in line with the Paris Agreement. But progress is limited and certain sectors lag behind in their efforts to reduce their impacts on the climate (in particular the transport sector; see Tagliapietra and Zachmann, 2018). Coal phase out is too slow in several countries.

Putting a price on greenhouse gas emissions in all sectors is indispensable to reduce emissions. You will need to ensure that the EU carbon price becomes high enough to lead to more rapid and significant changes in behaviour. Other sectors not currently participating in the EU emissions trading system will also need to be covered, possibly with a tax.

Industrial policy can support decarbonisation and you should mobilise the EU's instruments in that regard. Regulation on sustainable finance is a further lever the EU has to manage climate risks.

Your climate strategy will need to address distributional concerns or risk failing politically (Zachmann *et al*, 2019). To this end, the carbon tax proceeds could be redistributed to reduce the burden on low-income households[12].

Don't underestimate how transformative serious climate action will be for the entire economic system. The rising carbon price and the carbon tax should be accompanied by public funding for innovation to accelerate the emergence of new technologies, which will create new activities and also cut the cost of clean energy.

It is crucial to understand the importance of digitalisation for the green revolution and support it with public policy. Lowering the cost of clean energy is all the more important because key industries depend on access to affordable energy and you need them to support the transformation.

The EU's climate strategy also needs to have a global perspective. Global greenhouse gas emissions continue to rise quite dramatically, in particular driven by emerging economies. We consider three policies as central. First, the EU should continue and redouble its efforts to support emerging economies in basing their economic models on green growth.

Financial and technological support for green infrastructure is good climate policy[13] and it can also create economic opportunities for leading green EU companies. Second, the EU, like other industrialised economies, has managed to reduce emissions in production, but not as much in consumption of greenhouse gases. Some form of carbon border adjustment will be necessary to tackle this[14].

Finally, given that global emissions continue to grow so rap- idly, scientists increasingly talk of the Anthropocene – a geological period in which human activity is the dominant force shaping the Earth's ecosystem. Given that the earth's climate might be increasingly influenced by self-reinforcing feedback loops, we consider it essential to study how to manage the fallout from global warming and how to reduce emissions by other means[15]. You should exercise global leadership on this.

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Growth and convergence

You should support the improvement of the quality of institutions, which varies significantly in different EU countries. Governance structures and institutional quality are known to go hand-in-hand with good and sustainable economic outcomes (Acemoglu and Robinson, 2012; Acemoglu *et al*, 2005)[16].

Even though improving institutional quality is, above all, a job for national politics, you could and should support such endeavours more than currently. You should use the EU budget as a tool to support institutional reform programmes and review the EU's approach to promoting good governance (Mungiu-Pippidi, 2019).

One of the first challenges you will face when taking office is to complete the negotiations on the multiannual financial framework. In our view, you should aim to significantly reduce the share of spending that goes to the common agricultural policy, while boosting spending on innovation and research.

The EU budget should finance projects with true European added value, such as the European space programme and European infrastructure and innovation policy. Structural funds are probably your main instrument to boost growth in the parts of Europe that have a productivity problem, but their effectiveness needs to be increased (Darvas *et al*, 2019).

Meanwhile, the common agricultural policy should be changed so it focuses on increasing the sustainability of our food production[17], increasing biodiversity[18] and ensuring the best results in terms of farmers' incomes (Ciaian *et al*, 2015). In short, it should be a basic goal to use the budget better and create space for spending on new priorities such as migration policy and border protection.

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You should devote significant political capital to combatting tax evasion and fraud and support a fairer distribution of the tax burden. Social and tax policies are national policies, but the single market makes it easier for large companies and rich individuals to reduce their effective taxation.

An increasing tax burden on the working middle class is incompatible with the promises of Europe's social market economy. The EU growth strategy should also build on useful EU instruments such as the European Social Fund and the European Pillar of Social Rights.

You should also contribute to a better management of macroeconomic policy. In case of an economic downturn, you should support the relevant authorities in responding rapidly. With interest rates at the zero lower-bound, monetary policy will have little to contribute to stem the next downturn.

Your role as Commission President, together with your responsible Commissioners, will be to raise awareness about the importance of national fiscal policies to stabilise the EU economy. You will have to identify risks to the macroeconomy early on and organise a coordinated fiscal response.

On the fiscal rules, we believe that rigid application might lead to faulty recommendations. But at the same time, a politically partisan interpretation of rules would undermine your institution as an independent and neutral broker of compromises.

In our view, you should therefore not only propose changes to the fiscal rules to increase their usefulness for fiscal macro-management. You should also clearly explain what you think should be the right fiscal policy in any given circumstance – thereby increasing political buy-in. A reform of the European Semester with more convincing communication than currently is much needed.

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In this respect sovereign spreads, while useful in enforcing fiscal discipline, can also hamper the ability of some countries to use fiscal policy when they need it most and hamper the transmission of monetary policy.

Your role will be to communicate wisely and broker compromises among key players. You should support the European Central Bank's outright monetary transactions programme and the European Stability Mechanism as a crucial institution for the stability of the euro area.

Last it is clear that you should continue to strengthen the architecture of the euro area in order to improve its capacity to deliver better performance in terms of growth and cohesion. Failing to do so risks leaving the system more fragile than it should be. To this end, aim to complete banking union.

Reducing the exposure of banks to national sovereign debt is necessary for your attempt to Europeanise the banking system and introduce a European deposit insurance scheme (EDIS; see Wolff, 2016). The problem you face is that the EU has debated this strategy for the last five years without much action.

Resistance comes from a fear that EDIS would be a transfer to weaker countries while resistance to sovereign bond limits remains high because of a fear that funding might become more difficult or even impossible for the fiscally weaker countries. The result is that the unstable status quo has prevailed. You will have to look for innovative ideas to break that deadlock[19].

It is difficult if not impossible to implement banking union without at least some additional instruments to support governments' fiscal policies. You should also look for innovative ways to create deep and integrated capital markets, as current legislative proposals have not been enough[20].

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How can you best secure the support of ministers in promoting this project further? Finally, do not abandon the idea of creating a safe asset; instead weigh carefully how to do it in a way that does not distribute risk unfairly and counterproductively and prepare a template that could be used in the next crisis.

Institutional issues

In order to deliver an ambitious strategy, you will need to tackle three important institutional issues:

- The governance of the EU and Europe more generally;
- The role of the Commission and its relationship with the European Council and the European Parliament;
- The internal organisation of the Commission.

As far as EU governance is concerned, the first issue to consider is what to make of the motto *"unity in diversity."* The EU is a unique construction based on a diverse set of countries with a relatively low degree of centralisation of decision making. This diversity and decentralisation sets us apart from the United States and China. The coming years will be decisive on whether the EU can preserve and succeed with this unique model.

At the 9 May 2019 summit in Sibiu, European leaders reaffirmed their *"belief that united, we are stronger in this increasingly unsettled and challenging world."*[21]. The method of sustaining unity has been effective in maintaining sanctions against Russia and also keeping a united front in the Brexit negotiations.

The challenge is to reconcile the pledge of unity with the reality of diversity. The differences between the 27 (or 28, should the UK decide to remain in the EU) member states make it sometimes difficult, or even impossible to make

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progress in some areas. Unity can come at the expense of speed and depth. Unanimity can also lead to a lack of experimentation and flexibility.

There are two ways to deal with this issue:

- First, one can move to majority decision making at the level of 27 or 28. This should be possible if the union increasingly thinks that in the long-term, the pros outweigh the cons. However, the option of moving to qualified majority voting on foreign-policy decisions has already been rejected several times.

- Second, one could advance in smaller groups on specific issues. The EU treaties allow for smaller groups of countries to advance more speedily with specific projects. We consider it important not to exclude some type of differentiation.

  Any move to advance in certain groupings should be based on the core European institutional structure: the Commission and the European Parliament. It should always be clear that groups of EU countries are open to others that wish to join. Within groups, it is again possible to see unanimous decision making or majority decision making.

While we prefer greater use of majority voting at EU level, we believe you should not exclude advancing in smaller groups on some key issues where no unanimity is possible. In taxation for example, by moving forward in a smaller group, you would also increase the pressure for all to advance. Differentiation might be the only politically feasible way to deepen integration on some of these contentious topics.

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The question of multispeed advancement also concerns non-EU countries. The UK and the EU's neighbourhood are of paramount importance for the EU's position in the world. Without a stable neighbourhood, the EU's influence in the world will decline. And the UK is and should remain an important ally in global forums such as the G7 or the United Nations.

Your predecessors have been busy managing Brexit, but to date, no Brexit deal has been ratified. One of your main challenges will be to define the relationship with the UK and the EU neighbours more broadly, including with Turkey and the Western Balkans.

This indicates a need to reflect on how to arrange multiple levels of integration and cooperation in a way that does not create unnecessary political tensions. You should not shy away from exploring new models of cooperation or limit yourself only to existing models.

The second issue is the relationship between your three institutions. Given the increased participation rate in the 2019 European elections, we believe that the European Parliament's role in deciding on key strategic issues will and should increase[22]. At the same time, the European Council also sets out the main strategic guidelines for the EU's future. All three of you will have to work together to advance this strategic agenda.

One of the priority issues in the relationship between the three institutions will be the interpretation of the political nature of the European Commission. One of the most important institutional changes of the last Commission was the explicit political interpretation of the mandate of Commission president. This approach has yielded results.

For example, Jean-Claude Juncker prioritised ending austerity and interpreted the fiscal rules flexibly, which we consider to be one reason for the improving economic situation of the last few years. The Commission President has

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also exercised political leadership in the context of the Greek crisis and has been a strong political voice in the EU-US relationship.

Jean-Claude Juncker also exercised leadership and rejected some possible nominations from member states for the Commission College. But this approach has also led to accusations that the interpretation of fiscal rules was not only done 'flexibly' but also in a partisan way – reducing trust in the Commission among some countries as a neutral arbiter.

What does a 'political' Commission mean? The Commission is obviously a political body, since many of the thousands of decisions it takes, as guardian of the treaties or initiator of legislation, are based on political value judgements.

In our view, the Commission should strive to interpret its role of guardian of the treaties, ie. when it has to interpret the treaty and the rules, in an even-handed and non-partisan way.

The EU should not interpret the rules more strictly for countries that are run by a government from a different political party, nor should countries be treated differently for reasons unrelated to the issue at hand.

Otherwise, the Commission would no longer be credible as a neutral institution at the service of the union.

Conversely, this also means that the Commission should devote sufficient resources and tools to monitoring and enforcement of the application of the treaty and rules by member states. The EU needs to strongly uphold the core principles of the union: the rule of law and the defence of core EU values.

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Finally, as the nominated Commission President, you should fully use your powers to reject the nomination of candidate commissioners who do not support key European values. Those candidates would also be rejected by the European Parliament and the Commission President has a duty to anticipate that and to ensure a strong college.

When it comes to proposing or updating legislation, we consider a party-political interpretation of the role of the Commission as legitimate.

Once the Commission takes office, one of your first tasks as Commission President, will be to organise the College. Here, much will depend on your managerial approach. You might prefer a more hierarchical structure with vice presidents or a more network-like structure.

We consider it fundamental that you ensure the strong collaboration of commissioners responsible for a number of related areas – which could be done in clusters or hierarchies. The key areas where we see the need for close collaboration are:

- European economic sovereignty
- Sustainability
- Growth, industrial policy, innovation and the relationship with competition policy
- Migration, asylum, border protection, Schengen, internal security

An important prerogative of the Commission President is to define the mandate of the commissioners. The outgoing Commission president gave more detailed work programmes to his commissioners than any of his predecessors.

We think this is a useful way of leading the Commission and is also a good way to construct a coherent programme in line with the priorities of the various parties that support you in the European Parliament.

Europe faces major challenges, it needs an ambitious agenda and the three of you need to work together and with leaders in Europe and the world to deliver on this ambitious agenda. ■

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Endnotes

1. For example, by releasing methane currently stored in permafrost. Methane is a more powerful greenhouse gas than carbon dioxide. Scientists debate how strong the release of methane currently is; see for example Saunois et al (2016). Knoblauch et al (2018) points to the relevance of thawing permafrost for methane release.

2. See Voosen (2019) for a recent summary pointing out the more significant increase in global temperature.

3. For detailed reports, see United Nations (2019) and Intergovernmental Science- Policy Platform on Biodiversity and Ecosystem Services (2018).

4. And despite a rising share of national income going to capital income, the tax revenue from taxing capital income seems to be a rather stable percentage of overall revenue.

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5. See Brys et al (2016) for proposals.
6. Citizens in southern European countries, however, tend to trust the EU more than their national authorities. In northern Europe, national authorities tend to be trusted more than the EU. See Eurobarometer data as reported in Demertzis et al (2019).
7. Survey conducted for Friends of Europe think tank (2019). Stopping climate change, ensuring citizen rights, managing migration, securing peace, fighting terrorism and taming globalisation are mentioned among the top issues that citizens want the EU to deliver on; see De Vries and Hoffmann (2019). Compared to the early 1990s, when Europeans were split 50-50 on the issue of defence, the share of people who think defence should become an area of joint decision-making was more than 70 percent in 2018 (Eurobarometer).
8. The EU has relied on the US lead when it comes to, for example, intelligence gathering.
9. There is a separate discussion about the screening of foreign direct investment to protect strategic sectors and key public infrastructure. While these measures reduce competition and the free flow of capital, they are warranted if there are clear geostrategic concerns.
10. We consider it unlikely and undesirable that the EU will form a political union that could legitimise and decide on such actions. Here we disagree with, for example, Bildt (2019).
11. For example, we could imagine France, Germany and the Benelux increasing collaboration or perhaps even creating a European intelligence agency. That would be an important step towards reducing dependence on US intelligence.
12. Simple models for such a scheme have been designed, see for example the carbon dividend plan from the Climate Leadership Council (2017).
13. See https://ec.europa.eu/clima/policies/international/finance_en for a summary of the EU's international climate finance commitments. Many emerging economies have made their support for the Paris Agreement conditional on financial support. See also Wolff and Zachmann (2015)
14. See Horn and Sapir (2013) for an early discussion on some key ideas how to do so.
15. Research is needed on how to increase carbon sequestration through natural means, other carbon capture

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technologies and on what geoengineering would imply.
16. Demertzis and Gonzalves Raposo (2018) provided a summary of six World Bank governance indicators for all EU countries since 1996 and argued that the EU needs to increase its monitoring of institutional quality.
17. Different initiatives exist that propose better ways forward. See for example International Panel of Experts on Sustainable Food Systems (2019).
18. See, for example, Food and Agriculture Organisation of the United Nations (2019).
19. You might want to consider introducing a European-level deposit insurance scheme with lower coverage as a base, to be supplemented by the current national schemes. The lower European level would still cover the vast majority of deposits and would send a strong signal to EU consumers, without being seen as a scheme for redistribution.
20. In Demertzis et al (2019), we proposed looking into a 28th regime post-Brexit for segments of the capital markets, and the use of digital technologies to integrate capital markets.
21. To this effect, they made a number of commitments, including that "We will defend one Europe - from East to West, from North to South…There is no place for divisions that work against our collective interest" (European Council, 2019).
22. Currently, much of the legislative impetus comes from the European Council, which asks the Commission to make proposals to the two co-legislators, the Council and the Parliament. Several Spitzenkandidaten have proposed that the European Parliament should also be able to ask the Commission to make legislative proposals. We support this idea, but with two caveats. First, all legislative proposals made by the European Commission, regardless of their origin (the Commission itself, the European Council, or the Parliament), should be in line with an overall work programme of the Commission. Second, requests by the European Parliament should be in areas in which the parliament is a co-legislator, and should have the support of a majority of its members.

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Evolution or revolution: an afterword

After the Great Recession Olivier Blanchard and Lawrence Summers believe that a major rethinking of macroeconomic and fiscal policy is in order

The changes in macroeconomic thinking prompted by the Great Depression and the Great Inflation of the 1970s were much more dramatic than have yet occurred in response to the events of the last decade. This column argues that this gap is likely to close in the next few years as a combination of low neutral rates, the re-emergence of fiscal policy as a primary stabilisation tool, difficulties in hitting inflation targets, and the financial ramifications of a low-rate environment lead to important changes in our understanding of the macroeconomy and in policy judgements about how to achieve the best performance.

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MIT Press released last week a volume containing the papers and discussions we organised at the Peterson Institute conference 18 months ago agnostically titled, *Evolution or Revolution? Rethinking Macroeconomic Policy after the Great Recession* (Blanchard and Summers 2019). While matters are far from clear, the events of the last year and a half lead us to regard secular stagnation as a significant threat to advanced countries.

From somewhat different perspectives (Blanchard 2019, Rachel and Summers 2019), we have increasingly come to believe that a major rethinking of macroeconomic policy, and in particular of fiscal policy, is in order.

We had written in our overview paper that:

> *"At a minimum …policies may need to become more aggressive both ex-ante and ex-post with a rebalancing of the roles of monetary, fiscal, and financial policies. While low neutral rates decrease the scope for monetary policy, they increase the scope for fiscal policy. Think of such rebalancing as evolution. If, however, neutral rates become even lower or financial regulation turns out to be insufficient to prevent crises, more dramatic measures including larger fiscal deficits, revised monetary policy targets or sharper restrictions on the financial system may be needed. Think of this as revolution. Time will tell"*

We are struck by several changes in economic conditions since the time when we wrote.

First, neutral real rates as judged by markets or financial observers have not increased and have likely declined even as the crisis has receded. The notion that low rates largely reflected the after-effects of the financial crisis and would slowly fade away has simply proven wrong.

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Evolution or revolution? The choice of label may depend as much on the temperament of the labeller as on an objective reading of economic conditions

In the US, 10-year real interest rates have declined significantly in recent months and are about where they were 18 months ago, despite the passage of major tax cuts. In response to concerns about the possible weakening of the economy and the absence of inflation pressure, the Fed chair has signalled that the current tightening cycle may be over, with short rates below 2.5%. The markets regard the next central bank move as considerably more likely to be a rate cut than a rate increase.

In Europe, in response to economic weakness, the date at which interest rates will return to positive territory has been pushed back several years and discussion has shifted to restarting quantitative easing. In both Germany and Japan, indexed bonds suggest negative real rates as a feature of economic life for the next generation.

Second, fiscal policy has continued to be expansionary in Japan and has turned strongly expansionary in the US and mildly expansionary in Europe, without leading to anything like overheating. Despite this fiscal stimulus, inflation has barely reached the Fed's inflation target, and market expectations are for less than 2% inflation even looking out 30 years.

In the euro area and in Japan, inflation remains below target, with little indication that the target will be met any time soon. We see it as a strong indication that, despite aggressive macroeconomic policies, output is still below potential, at least in the euro area and in Japan.

To us, these facts lead to the inevitable conclusion that fiscal policy will have to play a much bigger role in the future than it has in the past. Surely, there is not enough space, even in the US, for monetary policy to respond adequately to a standard-sized recession.

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Recall that the typical US recession has been associated with a 500-basis-point decrease in policy rates – a decrease twice as large as the value of the policy rate today. But the problem may be more recurrent and more fundamental. Aggregate demand may remain chronically low, implying sustained low neutral rates.

The zero lower bound may be binding for long periods of time, implying a lasting need for sustained fiscal policy help and a more dramatic redistribution of roles between monetary and fiscal policy. We should be clear here.

Higher public debt per se has welfare costs, although, as one of us has shown, the low rates are a signal that these welfare costs of higher debt may be limited. But, in the current environment, to the extent that higher deficits can help reduce or eliminate the output gap, the benefits may well exceed these costs.

The long zero lower bound episode in Japan is highly instructive. Since 1999, the policy rate has remained at or very close to the zero lower bound. The size of the balance sheet of the Bank of Japan has been multiplied by more than five. On the fiscal side, Japan has run an average budget deficit of 6% of GDP, and net debt has increased by nearly 90% of GDP.

Yet, the zero policy rate, aggressive QE, and dramatically expansionary fiscal policy have not even succeeded in maintaining output at potential. For a long time, economists looking at Japan pointed to mistakes in policy and excessive reliance on deficits; it is now clear that the Japanese macroeconomic response was, on net, the right one.

One may argue that these issues only arise when a country is at the zero lower bound, and that the US is now away from danger and the need for such extreme policies. This would be wrong.

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First, even when rates are positive but close to zero, the risk that a slowdown in demand may take the economy back to the zero lower bound will lead households and firms to worry, leading to even lower demand and a higher likelihood of running into the bound.

Second, even if the zero lower bound could somehow be avoided – say, by prohibiting cash and paying negative interest on money balances – very low rates appear to be often associated with excessive risk taking, ranging from excessive leverage to an increase in the frequency of bubbles.

Third, there are good reasons to believe that the effect of interest rates on aggregate demand is weaker the lower the rate; indeed, the argument has been made that there is a 'reversal rate' below which the effect of the rate changes sign, and lower rates actually decrease lending.

Fourth, looking at the long run, low rates may allow zombie debtor firms to remain in existence too long, slowing down reallocation and possibly growth.

We do not consider the evidence for each of these factors to be overwhelming, but together they provide a case for keeping neutral rates reasonably high, and by implication being willing to run the appropriate expansionary fiscal policy to sustain demand.

This in turn raises the question of how to coordinate fiscal and monetary policy. That they could work in opposite directions was made clear in the US, when the Fed bought long bonds to decrease their yield and the Treasury used the opportunity to lengthen the maturity of government debt. Coordination in this context, however, raises delicate issues.

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One of the main advances in monetary policy has been to give independence to the central bank, giving it an inflation target and letting it achieve it on its own. Can this remain the case if both fiscal and monetary policy must work together to achieve full employment? The flat slope of the Phillips curve makes it very appealing to go for time-inconsistent policies, to risk overheating at the cost of apparently limited inflation in the short run. Can the danger be avoided?

We now turn to even more exotic questions, triggered by Japanese developments. Net government debt has now reached 150%. So far this has happened with no increase in interest rates, but were investors to worry and require a larger spread, the higher the debt, the higher fiscal adjustment required to avoid a debt explosion. This raises the question of how to reduce that risk.

One way is to increase the maturity of the debt, so that the increase in interest rates affects interest payments only over time, giving more time for the government to adjust.

Another is to rely more on implicit, non-tradable debt (for example, giving a larger role to pay-as-you-go social security, which is clearly immune to sudden stops).

Yet another is to ask the private sector to take on more of the debt. In general, because of its power to tax, the government is best placed to take on debt, but one must wonder whether this remains true at Japanese levels of public debt. One can think of measures – perhaps even distortionary measures – giving incentives to households to save less and to firms to invest more. The distortions may be less costly than the risks of very high public debt.

Evolution or revolution? The choice of label may depend as much on the temperament of the labeller as on an objective reading of economic conditions. We noted in our chapter in the recently published volume (Blanchard

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and Summers 2019) that both the Depression and the Great Inflation of the 1970s led to dramatic changes in macroeconomic thinking – much more dramatic than have yet occurred in response to the events of the last decade.

We think it is increasingly likely that this gap will close in the next few years as a combination of low neutral rates, the re-emergence of fiscal policy as a primary stabilisation tool, difficulties in hitting inflation targets, and the financial ramifications of a low-rate environment lead to important changes in our understanding of the macroeconomy and in policy judgements about how to achieve the best performance. ■

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The road to Kazakhstan

The WTO is facing heightened pressure from multiple angles. Sofia Baliño finds that members are debating a new investment facilitation framework in a tenuous WTO landscape

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The 70 World Trade Organization (WTO) members currently working on identifying 'elements' for a multilateral framework for investment facilitation are expected to present the fruits of their labour at the global trade club's Twelfth Ministerial Conference (MC12) in Nur-Sultan, Kazakhstan in June 2020. Should their discussions prove successful, the next step would be text-based negotiations after MC12 draws to a close.

The push to develop such a framework comes at a time when the global trade body is facing heightened pressure from multiple angles: some of these pressures are building within the system itself, while others are the result of external forces that are repeatedly testing the WTO's resilience against intense, short-term shocks, as well as its long-term health and ability to support the achievement of sustainable development objectives.

The current 'structured discussions' on investment facilitation began after the WTO's last Ministerial Conference in Buenos Aires, Argentina, in December 2017, an event that was known largely for the failure of multilateral negotiations on disciplining harmful fisheries subsidies and in setting up a new work program on agriculture-related trade talks.

This disappointment was paired with a landmark development that was largely, though not entirely, unprecedented in the organization's recent history: the announcement of various 'joint initiatives' among large groups of WTO members to lay the groundwork for new negotiations or work in select subject areas[1].

One of these four initiatives is the development of an investment facilitation framework; the other three involve preparing for formal negotiations on new rules on electronic commerce; working toward a better understanding of the intersection between women, trade, and economic empowerment; and establishing an informal work program on issues that affect micro, small, and medium-sized enterprises' (MSMEs) ability to participate in world trade.

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"The fact that this is happening shows that people see this organization as a place where they can advance issues that are of importance to them and to their economies," said WTO Director-General Roberto Azevêdo at the close of the Buenos Aires Ministerial, while urging participants in these initiatives to make these discussions inclusive[2].

Since then, the WTO chief has referred to the investment facilitation efforts as a potential avenue for exhibiting the organization's *"continued importance, relevance, and credibility,"* while reminding participants at their March 2019 investment facilitation meetings to keep the process open and inclusive, even of WTO members who are not part of the initiative[3].

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Participants must also consider what the unveiling of this investment facilitation framework will mean for the tone of the multilateral discussions among the wider membership

"While we work to respond urgently to the broader systemic issues that we face in the trading system, we also have to deliver in areas of immediate, practical economic importance to members. For many members, facilitating investment is clearly one such area," he continued.

Proponents say that investment facilitation could also be valuable in addressing the well-documented shortfall in the investments needed to fulfil the targets included in Agenda 2030 for Sustainable Development and the related Sustainable Development Goals (SDGs), which the United Nations Conference on Trade and Development (UNCTAD) estimates to be at USD 2.5 trillion annually for developing economies[4]. While this problem is urgent, making sure this same framework or other investment facilitation efforts elsewhere do not complicate the achievement of sustainable development objectives in other ways is also essential.

Several major developing countries have argued that creating a multilateral framework for investment facilitation that would be housed at the WTO not only goes beyond the scope of the organization's mandate and capabilities, but also takes much-needed attention away from existing negotiating issues that have a clearer link to trade and are vital for the development prospects of several countries[5].

The fact that these discussions are advancing among a relatively small group, despite the opposition of some other WTO members, also raises the question of how this framework can truly be 'multilateral' as its proponents suggest, and the systemic implications of then presenting the outcome of these structured discussions to the full membership in Kazakhstan for their buy-in.

As with other trade negotiations at the WTO, the closed-door nature of the discussions also means that stakeholders typically present at UN meetings face severe limitations on weighing in on these discussions and advocating for a wider range of perspectives.

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"The WTO was a rules-based institution. Any and every subject was not within the domain of the WTO as had been laid down in the Agreement Establishing the WTO. If members had to start seeing it as a discussion for each and every subject, it would destroy the rules-based institution," India said at the May 2017 General Council, where it blocked the addition of an agenda item on investment facilitation on these and related grounds, and stressed the language agreed at the 2015 Nairobi WTO Ministerial about not negotiating on issues where there is not a consensus[6].

More recently, a group of ministers from developing economies meeting in New Delhi in early May 2019 issued a statement stressing that any new issues being considered under the 'joint initiatives' from Buenos Aires must ensure they are supportive of the multilateral trading system. *"Multilateral avenues, based on consensus, remain the most effective means to achieve inclusive development-oriented outcomes. Members may need to explore different options to address the challenges of contemporary trade realities in a balanced manner,"* they said[7].

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Understanding investment facilitation

The group involved in these investment facilitation talks is currently meeting on a near-monthly basis, with their next meeting planned for July[8]. They have moved from naming possible issues to include in this framework to a discussion that is more 'concrete' and incorporates examples and lessons learned from WTO members' own experiences. This stage is based on a checklist of issues that were raised during their meetings in 2018, though the full checklist is not publicly available.

These issues fall within the categories of making investment measures more transparent and predictable, streamlining and speeding up administrative procedures and requirements, developing ways to improve international cooperation and sharing of information and best practices, and seeing that development-related issues are incorporated into such a framework. The sessions themselves are open to any interested WTO members, but are not open to other stakeholders.

Within the area of investment measures' transparency and predictability, possible 'issues' that participants raised last year included the notification of these measures to the WTO, along with making those measures publicly available[9,10,].

For administrative procedures and requirements, participants are examining issues such as whether to set time limits for administrative procedures or how to use information and communication technologies in making these procedures advance more quickly and cleanly[11].

On development, these discussions include the complex and important issue of special and differential treatment, which refers to provisions that allow developing countries additional latitude in implementing some of the WTO's rules, such as exemptions or additional time.

While the structured discussions are barely over a year old, the subject of whether and how to address investment at the WTO is a debate whose origin dates back decades. In the organization's early years, the relationship between trade and investment was one of the four 'Singapore issues' that working groups were tasked with considering after the organization's first ministerial conference in 1996[12].

These working groups were meant to assess whether and how to include trade facilitation, investment, competition, and transparency in government procurement[13]. After the Cancún ministerial collapse in 2003, the Singapore issues were formally dropped in 2004, with the exception of trade facilitation, which was integrated into the Doha Round negotiating agenda. It is worth noting that there are some existing WTO Agreements that do address certain aspects of investment, such as the Agreement on Trade-Related Investment Measures (TRIMs) and the General Agreement on Trade in Services (GATS).

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During the intervening years, investment-related discussions, aside from in the context of GATS and TRIMs, were largely absent from the WTO, though the international investment law and policy regime outside the global trade club has evolved substantially. The number of bilateral investment treaties or treaties with investment provisions that countries have negotiated now numbers at over 3,300, though not all of these remain in force, according to UNCTAD[14].

Within the regime of IIAs, Brazil has made the notable shift in abandoning the negotiation of bilateral investment treaties in favour of cooperation and facilitation agreements (CFIAs) with interested partners[15]. G20 members in 2016 adopted Guiding Principles on Investment Policymaking, a notable first for the coalition, though the item was omitted from leaders' communiqués in 2017 and 2018[16].

UNCTAD, along with the Organisation for Economic Co-operation and Development (OECD), has also played an active role in developing guidance for country governments and regional bodies that they can use in their investment policymaking efforts, including on investment facilitation in relation to sustainability objectives[17].

The new investment facilitation discussions among the WTO member group was the result of a push by two different configurations of countries. One of them is a group known as the Friends of Investment Facilitation of Development (FIFD), which includes a growing coalition of developing economies that have advocated for an 'informal dialogue' on the issue and have held multiple workshops and regional outreach events[18].

The other group supporting this effort, known as the MIKTA, included Mexico, Indonesia, South Korea, Turkey, and Australia[19]. Officials from these WTO members, along with some trade experts, suggest that investment facilitation is the natural sequel to the WTO's Trade Facilitation Agreement (TFA), which is the only global trade deal that the organization has managed to negotiate, adopt, and bring into force since the World Trade Organization was first

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founded in January 1995[20]. The TFA and investment do have a common history at the WTO, in terms of both being 'Singapore issues'. From there, however, their tracks diverge.

Trade facilitation addresses topics which generally fall within the remit of ministries and border agencies that work on areas such as trade, customs, transport, and foreign affairs. The objective behind trade facilitation is reducing trade costs: making sure that trucks are not stalled for days when crossing national borders, for example, or face onerous bureaucratic hurdles in the form of duplicate document requirements and administrative barriers[21]. At the time of this writing, the Trade Facilitation Agreement had been ratified by 142 of the WTO's 164 members.

Investment facilitation is another matter altogether: much of investment facilitation touches upon the regulatory environment in which investors operate, which has implications for the business climate[22]. Developing and implementing multilateral measures in this area would require the involvement of multiple ministries, well beyond those that deal with border issues affecting goods in transit, while implicating a host of economic sectors.

How an investment facilitation framework would be designed without expanding into investment liberalization and protection would be complicated at best. The conclusion that investment facilitation disciplines merit further development because the TFA negotiations were a success would therefore be far-fetched, given the conceptual and practical differences between these two subjects in theory and in practice.

The TFA also involved a multilateral negotiating process with an agreed mandate and scope, where all 164 members could advocate for their interests, as opposed to the current approach in the investment facilitation talks, where a multilateral framework is being discussed among less than half of the WTO membership.

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Eyes on Kazakhstan ministerial conference

The investment facilitation discussions are preparing to enter their next phase after the summer. Other joint initiatives, namely e-commerce, are now entering a new chapter involving detailed, substantive talks. With just one year to go until the next WTO ministerial conference, these efforts are also taking place in a landscape that, in some ways, have very little to do with investment facilitation at all.

WTO members and the institution overall are grappling with an additional challenge: that without a major win in June 2020 in Kazakhstan, either at the 'plurilateral' or multilateral levels, the interest and attention of member governments, the private sector, civil society, and academia will move even further away from the global trade club and into other forums and trade agreements, where not all voices will necessarily be included.

WTO members in Kazakhstan and beyond, however, need to make sure that they are negotiating not just for the sake of achieving any agreed multilateral outcomes, but that these outcomes address priority issues with urgent development implications, while avoiding the missteps that have prevented these negotiations from reaching a successful, development-oriented conclusion in the past.

There are already some worrisome signs in the regular negotiations among the full WTO membership. Multilateral talks on disciplining harmful fisheries subsides have been highly active since the Buenos Aires Ministerial Conference, yet trade officials caution that these efforts need to move beyond engagement into substantive progress, both on technical issues and in securing the political will to meet their current end-2019 target, or even by the June 2020 Kazakhstan Ministerial[23].

Negotiators working on agriculture are planning to move from working group discussions to more formal talks after July 2019, but what level of ambition they will aim for and what issues they may take is far from clear, with options

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including an outcome on transparency, a package of incremental advances in select areas, or a comprehensive set of reforms to agricultural trade rules in areas such as domestic support or public food stockholding.

Again, while there has been intense activity in this area in Geneva, moving from activity to a consensus, development-oriented outcome supported by all 164 members is a notoriously tough ask, and has proven especially difficult in the agriculture negotiations.

Concurrently, the WTO is being repeatedly tested against its ability to handle shocks, including economic ones that lie outside the realm of the institution, such as the US-China trade tensions that have involved months of tense negotiations and tariff escalations, or the impending exit of the United Kingdom from the European Union.

It is also facing pressures from within, with its dispute settlement system on dangerous ground. The Appellate Body is widely expected to stop functioning at year's end: December 10, 2019 is when two more judges' terms expire, leaving just one Appellate Body member left. The United States, which has been blocking the start of selection processes to fill the vacant Appellate Body slots, has repeatedly made clear that it has no plans to remove its objections any time soon.

US Ambassador to the WTO Dennis Shea said in early May that his country could not support any of the proposals for Appellate Body reform that some WTO members have lately put forward, nor has Shea indicated any obvious signs of what approaches could pass muster[24].

Under WTO rules, three Appellate Body members must sign off on any report, and there is a growing fear that WTO members will be able to appeal reports they disagree with to a body that is unable to take on its appeal. This

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situation would create an unprecedented state of legal uncertainty, making it impossible to have final, binding rulings on whether members' disputed measures are consistent with global trade rules.

As the days and months tick down toward the Kazakhstan Ministerial, another question is looming large over delegates: whether any negotiated outcomes, multilateral or otherwise, can be effectively enforced in the absence of a functioning Appellate Body.

If the investment facilitation and e-commerce joint initiatives both advance enough that their proponents can present outcomes for ministers' consideration in Kazakhstan, this will also raise a host of additional questions: what will it mean for the multilateral trading system, for example, that elements for this multilateral framework on investment facilitation or a new set of draft rules on e-commerce have been developed among a WTO member group, rather than by all 164 WTO members.

While the Nairobi Ministerial Declaration in 2015 made clear that negotiating on any non-Doha Round issues at the WTO would require the signoff of the full membership, the implications of that compromise language in practice could be far-reaching on multiple levels, such as on the levels of energy and interest devoted to existing negotiating issues that are of particular importance to developing and least developed countries (LDCs)[25].

Some developing countries have questioned whether they would get the same traction if they raised 'new issues' of their own without an agreed mandate to do so, leading to an even greater imbalance among the membership and on the organization's overall agenda[26].

For example, at the May 2017 meeting of the General Council where China had asked to put an item on the agenda about investment facilitation, Uganda was one of various countries referring back to the Nairobi Ministerial

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Declaration, and the concern that in that meeting's aftermath some members were now ignoring issues with existing mandates and instead bringing up new ones of particular interest to them. *"Would anybody pay attention to the LDCs if they raised an issue without a mandate?"* Uganda said, according to the meeting minutes[27].

Going forward, participants of this joint initiative must consider what the absence of some emerging economies, such as India and South Africa, from the talks means for the development dimension of any final outcomes, even if these economies have opted against participating in those discussions for the above-mentioned reasons[28].

Participants must also consider what the unveiling of this investment facilitation framework will mean for the tone of the multilateral discussions among the wider membership, which are already loaded with tension, and whether it will bring back the frustrations and conceptual disagreements that were on display in Nairobi over three years ago. ■

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How to ensure effective sustainable financing of international development

The world is committed to the development of low-income countries. Christine Lagarde considers the obstacles that must be overcome

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Our focus today is on sustainability. Sustainable debt for sustainable growth—and, may I add, on a sustainable planet and for a sustainable future.

The challenge of attaining the SDGs

We are all committed to see low-income countries make decisive and lasting advances in development. This commitment is embodied in the Sustainable Development Goals, or SDGs—the noble trifecta of economic prosperity, social inclusion, and environmental sustainability. Attaining the SDGs is both an economic and ethical imperative.

Yet we face a steep uphill climb. Our work at the IMF has shown that many countries need to significantly scale up spending to meet the SDGs by 2030. The additional spending needs in vital areas such as health, education, and priority infrastructure represent as much as 15 percentage points of GDP on average in low-income developing countries—which is equivalent to about half a trillion US dollars in 2030. This is clearly a considerable challenge.

How can this be financed in a way that is sustainable? This is the key question. The first step begins at home—raising more domestic revenue, making spending more efficient, reducing corruption, and improving the business environment.

We believe that countries can raise as much as 5 percentage points of GDP in additional tax revenue—ambitious, but doable. But this alone will not be enough. Developing countries will also need support from the international community—from bilateral donors, international institutions, and the private sector.

On the latter: it is high time for the private sector to embrace a greater sense of social responsibility, focusing more on long-term development and less on short-term profit. Fortunately, we are seeing far greater interest in 'impact

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investing' and financial instruments that embrace environmental, social, and governance issues. This certainly bodes well for the SDGs.

The financing conundrum

We also need to talk about debt financing, which has become again an issue of concern. Let me drill down a little on this topic. On one level, of course, there is nothing wrong with borrowing for development—if it is done sustainably. Here, let me share some good news and some not-so-good news.

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Over the coming decade, mobilizing financing to support the SDGs will be one of the most important challenges faced by the global community. But financing needs to be more sustainable than before

First, the good news. In recent years, low-income countries have been able to access more financing. This partly reflects relatively easy global financing conditions. More importantly, we have also seen a diverse group of official creditors step up to make funding available, and sometimes on a very significant scale in support of potentially transformative infrastructure investment.

China's Belt and Road Initiative has attracted considerable attention in this regard. The Asian Infrastructure Investment Bank (AIIB) has also emerged as an important source of financing, and the Islamic Development Bank's capital was more than tripled recently.

Now for the not-so-good news. Unfortunately, not all borrowers have managed this increased financing well, and others have been hit by significant economic shocks. The result has been a rapid rise in the median debt burden to 47 percent of GDP in 2018 for low-income developing countries. The rise has been particularly concentrated in commodity producers.

Forty-three percent of low-income developing countries are currently assessed at either high risk of debt distress or are already in debt distress, compared with 21 percent in 2013. So how can we get past the conundrum that countries need to spend more while their macroeconomic stability is in jeopardy?

International initiatives

As I survey the landscape, I do see a lot of efforts in the global community to find solutions that contain debt vulnerabilities.

Just to give some examples:

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- The German Presidency of the G-20 initiated the Compact with Africa. It stressed the need for better public financial and macroeconomic management, as well as legal and regulatory frameworks to encourage private investment and strengthen borrowing countries' ability to better manage debt.

- China just announced a new framework for evaluating debt sustainability in Belt and Road recipients—closely aligned with the framework employed by the World Bank and the IMF. We welcome this initiative by an important official creditor.

- And Caribbean countries have been exploring ways to adapt their debt instruments to build resilience against shocks—with the support of the Paris Club, the World Bank, and the IMF.

These are all excellent examples of multilateralism at work, of global solidarity. We need to continue to push these initiatives forward together.

The role of borrowing countries

Of course, borrowing countries themselves have a role to play, first and foremost by raising the payoff from public investment. Moving from the lowest to the highest public investment efficiency quartile could double the impact of investment on output, and thereby better underpin debt sustainability.

Strengthening debt management will also be crucial. This can be quite tricky. As debt instruments get more complicated, debt management capacity needs to become more sophisticated. Yet today, only 40 percent of countries meet basic standards for debt recording, while just a third meet standards for reporting and monitoring of guarantees.

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Technical assistance will be critical here. Many of you have made contributions to the World Bank-IMF Debt Management Trust Fund, to support this kind of capacity building, and I am extremely grateful for your support.

Backed by this Trust Fund, we will scale up our assistance over the next five years, with the aim to double it. Better debt management also leads to greater transparency. This is fundamental to sustainable financing.

The role of creditors

Let me now talk about the role of creditors, who have a vital role to play in encouraging greater transparency. As we have seen in Mozambique, private lenders can effectively facilitate hidden debt. Even for official creditors, non-disclosure agreements or complicated financing modalities can work against transparency.

I therefore welcome the work being done by the Institute of International Finance (IIF) on *Principles for Debt Transparency* of private creditors. I also welcome the G-20's self-assessment relative to its operational guidelines for sustainable financing. I encourage all G-20 members to participate. It is vitally important to push ahead with further reforms. The new creditor and instrument landscape is making it much harder to help countries restructure their debt.

Recent cases, such as the Republic of Congo and The Gambia, showed that restructurings can be drawn out, in part because we cannot rely on established creditor coordination mechanisms. And there is no one-size-fits-all solution here. In each of these cases, there was a different set of creditors. There is no one creditor to single out; it is a deeper and broader problem. Yet there are potential solutions on the table.

The role of the Paris Club

Most importantly, the Paris Club can play an important role in coordinating debt resolution because it incorporates

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best practices and has a wide membership—recently expanded to include Korea and Brazil. Wider membership of the Paris Club, including new official and plurilateral creditors, could help secure more rapid and coordinated debt resolutions.

Short of that, any debt restructuring efforts involving non-members would do well to closely follow the tested rules that Paris Club members have used for many years.

Conclusion

Let me conclude by mentioning the role of the IMF and the World Bank in all of this. Our two institutions have been collaborating closely on a detailed multi-pronged work program to address debt vulnerabilities. This includes strengthening debt analytics to help lenders and borrowers better understand risks. It also includes improving the quality, comprehensiveness, and transparency of debt data; and strengthening countries' capacity to manage debt.

Over the coming decade, mobilizing financing to support the SDGs will be one of the most important challenges faced by the global community. But financing needs to be more sustainable than before.

We look forward to working with the international community to develop and implement the ideas to resolve these issues, and welcome today's forum to help advance our efforts.

After all, it is about the flourishing of all people in a way that respects the limits of nature. What can be more important? We have identified and acknowledged the challenge, now we must act together to deliver. ■

Christine Lagarde is Managing Director of the International Monetary Fund

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Avoiding the storm: climate change and the financial system

Climate change poses significant risks to the economy and to the financial system, Sarah Breeden asserts, and calls for action today

My message is simple. Climate change poses significant risks to the economy and to the financial system, and while these risks may seem abstract and far away, they are in fact very real, fast approaching, and in need of action today. In short, there are storm clouds on the horizon and the financial system needs to act now to plot a new course to safer waters. To do that we will need three things. Firstly, a destination. Secondly, an able crew. And finally, a nautical chart – or map - to get us there.

We have the destination. More than 190 countries have signed the 2015 Paris agreement and set a goal to limit average global temperature rises to well below 2 degrees above pre-industrial levels. We even have a broad course to follow – that of a smooth and orderly transition.

We have also assembled a crew. Managing the transition to a low carbon economy is a global challenge that requires a global response. And so a coalition of the willing among central banks and supervisors have come together to form the Network for Greening the Financial System (NGFS).

In addition, and closer to home, we are working domestically with industry through the Climate Financial Risk Forum (CFRF) to build intellectual capacity and establish best practice in how to manage the financial risks from climate change.

What we are missing is the map. Getting us to our destination requires an understanding of what risks lurk in these deep waters and what future winds may buffet us, so we can make better decisions today. We need more data, greater disclosure, better analytical toolkits, advanced scenario analysis and new risk management techniques to help identify the hidden dangers on our journey. Of course there are opportunities potentially in front of us, too. Financing that orderly transition to a low carbon economy holds the promise of favourable tailwinds and smooth sailing.

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But how do we begin to draw this map? Climate change is an unprecedented challenge and, I am sorry to say, there are no existing charts for us to follow.

We therefore need to start with the very basics - understanding how, and on what scale, climate change creates risks for the financial system.

How the financial risks from climate change affect the financial system

The financial risks from climate change manifest through two channels – physical risks and transition risks.

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We can already hear distant thunder, but we must not wait for the storm to hit. We need to work together internationally and domestically, private sector and public sector, to achieve a smooth and orderly transition

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Physical risks arise from damage to property, land and infrastructure from catastrophic weather-related events and broader climate trends such as heatwaves, hurricanes, droughts, floods and rising sea levels.

These are not just risks for the future. Inflation-adjusted insurance losses from these events have increased fivefold in recent decades. And these physical risks affect banks and other financial institutions too. For example, according to analysis by ClimateWise, the average annual loss on UK residential mortgages from flood risk is expected to more than double by 2050 in a 4 degree world. And smaller lenders with geographic concentrations would be more at risk. The risk to the safety and soundness of the firms we supervise is clear.

Transition risks arise from changes in climate policy, technology and market sentiment as we adjust to a lower-carbon economy. The need to transition is widespread, affecting not only energy companies but also transportation, infrastructure, agriculture, real estate to name just a few. The implied change in energy costs from the transition will have a significant effect on many businesses. And so banks that have provided loans to those companies and investors that own their securities may find themselves with unexpected losses.

The timing and form of transition is inherently uncertain. But here, too, risks are already materialising. Tightening energy efficiency standards are affecting property markets. And credit risks associated with the low-carbon transition are already emerging in the automotive and energy sectors.

The distinctive nature of the risk

It is therefore clear to us at the Bank that climate change creates financial risks that are core to our mandates of safety and soundness and financial stability. But we have also been clear that the financial risks that climate change creates are distinctive and require a different approach if they are to be managed effectively.

First the risks are far-reaching in breadth and scope. They will affect all agents in the economy, in all sectors and across all geographies. Their impact will likely be correlated, and non-linear. They will therefore occur on a much greater scale than other risks.

Second, the risks are eminently foreseeable. I cannot tell you now exactly what will happen and when. But I can say with a high degree of certainty that some combination of physical and transition risk will materialise at some point in the future. Uncertainty about what will happen cannot lead to inaction and inertia. Rather we must develop different ways of managing the risk.

Third - and for me this is key - the size of those future risks will be determined by the actions we take today. The carbon released today is creating the physical and transition risks of tomorrow. Climate change therefore represents the tragedy of the horizon: by the time it is clear that climate change is creating risks that we want to reduce, it may already be too late to act.

That need to act most obviously includes government through climate policy. But since the financial risks that climate change creates are to be managed in all future states of the world, it is incumbent upon financial firms, and central banks and supervisors, to act too.

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Sizing the risk

How well placed are we to measure these far-reaching, foreseeable financial risks that require action today? To return to our metaphor of the storm – do we know if we are facing a near gale or a hurricane?

Studies show that average global incomes could be significantly reduced, perhaps by as much as one-quarter by the end of the century, if limited or no action is taken to reduce carbon emissions. Global averages of course mask

significant differences across regions and sectors. And most estimates are in my view conservative – particularly since the models are partial, heavily dependent on assumptions, and do not capture well the non-linearities that are a key feature of the most recent climate analysis.

The good news is that these risks can in principle be avoided. Let me be clear, the scale of transition is significant. But it need not create substantial costs across the global economy as a whole.

There will of course be winners and losers. Studies have focused on the impact from the transition on the financial system through 'stranded assets' that turn out to be worth less than expected, probably zero in the case of unburnable carbon. The estimated losses are large – $1 trillion-$4 trillion when considering fossil fuels alone, or up to $20 trillion when looking at a broader range of sectors.

Even at the bottom ends of these ranges, losses represent a material share of global financial assets. A climate Minsky moment, where asset prices adjust quickly with negative feedback loops to growth, seems possible. That underlines why the financial system needs an early and orderly transition. And why we need to change course now.

The Bank of England's response

Now we have established that the financial risks from climate change are significant and relevant to our objectives, what is the Bank of England doing about it?

We are of course considering the implications of climate change for our own operations, taking account of the financial risks from climate change whilst ensuring the purpose of our core operations as a central bank is preserved.

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In our work with the financial system more broadly we are taking a two-pronged approach, tackling the issue top-down and bottom-up.

Bottom-up: supervisory expectations, CFRF, disclosure

The action, or lack of action, of individual institutions will be critical in determining whether climate-related risks are well managed.

To that end, today, and following several months of consultation, we became the first regulator in the world to publish supervisory expectations that set out how the banks and insurance companies we regulate need to develop an enhanced approach to managing the financial risks from climate change.

Our expectations cover governance, risk management, scenario analysis, and disclosure. They are designed to ensure firms take a strategic approach, led by the Board, and with clear accountability. The approach should be holistic, forward-looking, embedded in business-as-usual risk management but grounded in the long-term financial interests of the firm.

We have deliberately not been prescriptive in our expectations, recognising that our understanding of this risk is immature but that it needs action now. Over the next year or so, as tools and expertise develop, we will however embed more granular requirements into our policy, to bring industry in line with our evolving expectations.

To support this development of best practice, we have established the UK Climate Financial Risk Forum (CFRF), co-chaired by the Prudential Regulation Authority and the Financial Conduct Authority. The forum brings together a wide range of industry participants (banks, insurers, the LSE and asset managers) as well as regulators. We have

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established four workstreams – disclosure, risk management, scenario analysis and innovation – each of which will help us put greater detail on our map.

The Bank supports the disclosure of climate risks by firms in line with standards set out by the Task Force on Climate-related Financial Disclosures (TCFD).

Disclosure by firms is critical if the financial system is to be able to weigh risks and direct investment accordingly. It is essential that that disclosure is forward-looking, speaking to future risks and opportunities and not just current emissions. Speaking personally, I cannot see that we will be able to disinvest our way to a low carbon economy. And we need to get to a position where we have a better basis for consistent comparisons across different firms.

Top-down - scenario analysis, BES, stress testing

Let me be clear this is just the start of our voyage. To be able to judge whether we are sufficiently well prepared for the future storms - to see whether a change in course or greater financial resilience is required - we need to look forwards not backwards, and we need to consider the position of the system as a whole.

Measuring these future risks from climate change to the economy and to the financial system is a complex task. A myriad of possible climate pathways – with different physical and transition effects – need to be translated into economic outcomes and financial risks looking ahead over many decades.

To simplify that challenge, we need to focus not on what will happen but what might happen. To do that we can use scenario analysis – data driven narratives that help anchor our assessments of risk. We might think of that as investigating a small number of different courses that we could follow, in order to determine which delivers the safest passage.

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Using scenario analysis to paint a picture of the risks of continuing along the current climate trajectory creates a clear strategic imperative to act. Considering a scenario where our climate goals are met highlights the changes that will be needed to support a transition to a low carbon economy.

Both expose the customers, sectors and geographies that are vulnerable to physical and transition risks and therefore highlight the areas where action is required.

Analysis of a disorderly transition - with sudden, unanticipated and discontinuous effects, perhaps prompted by the greater occurrence of extreme weather events – will demonstrate greater risk. That should incentivise financial firms to seek to pull forward the transition so that they are ahead of and in control of it - directing their capital to those that are resilient and avoiding those that are not.

By taking different decisions today, participants in the financial system are able to minimise their future financial risks. But while necessary, that may not be sufficient to deliver a financial system that is resilient to the financial risks from climate change.

Instead, we need also to consider this risk at the level of the system. In particular, do the actions of individual institutions in aggregate deliver the smooth climate pathway that their individual plans assume? And if they do not, what further action is required? In this way we can begin to stress the resiliency of financial system to the risks from climate change.

To that end, the Financial Policy Committee and the Prudential Regulation Committee here at the Bank of England will consider including climate related factors in a future Biennial Exploratory Scenario. The PRA will also ask UK insurers, as part of its market-wide insurance stress tests this year, to consider how their businesses would be

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affected in different physical and transition risk scenarios. And the NGFS plans to set out voluntary guidelines for how central banks can use scenario analysis to assess system-wide financial risks from climate change.

Scenario analysis thus bridges the gap between our top-down and bottom-up understanding of risk. That supports different actions by financial firms, central banks and supervisors today, and ensures that everyone is steering a safer course to avoid that otherwise impending storm.

Opportunities

My natural focus as a central banker is on the risks. But let me spend a brief moment on the opportunities.

The investment needs to finance this transition are significant – an estimated $90 trillion (almost five times US GDP) by 2030. This presents substantial opportunities for the financial sector to develop new products and services to mainstream green finance.

To support that goal, we might well need to develop new standards and classifications to identify which economic activities contribute to the transition to a low-carbon economy. With buoys pointing the way, we will be better able to identify the investment and lending decisions that will support a smooth and orderly transition.

Conclusion

Where does this leave us? I set out at the beginning our need for a map to get us to our destination. And I have set out how we at the Bank of England have begun to draw that map and where further cartography is in train.

What I did not mention is that the economy and the financial system appear to me to be like super-tankers rather than high-speed catamarans in the America's Cup. To change course, therefore, we need early action, a sustained

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effort and a recognition that it is better to be roughly right now not precisely right when it is too late. We can already hear distant thunder, but we must not wait for the storm to hit. We need to work together internationally and domestically, private sector and public sector, to achieve a smooth and orderly transition.

The window for that orderly transition is finite and closing. And our work to seize that opportunity could not be more important. Indeed it is not an overstatement to say that the future of our planet depends on it.

All hands on deck. ■

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Weaponising ODI
Nirupama Soundararajan and Dnyanada Palkar
examine if India could use overseas direct investment
as an economic tool to further its geopolitical goals

India's economic ties with its immediate and extended neighbourhood are perhaps not as well planned as they could be. Economic ties in the sub-continent have suffered for a decade now. Not only is SAARC dead in the water owing to India-Pakistan hostilities, but alternative fora such as BIMSTEC and SASEC have also fallen short of fostering the desired regional economic integration goals.

As the western world becomes more and more protectionist and the world continues to cope with the America-China trade wars, there is an immediate need for India to look at other markets for export.

Even while India's foreign investment inflows and overseas investment outflows have remained relatively stable, prevailing conditions throw up some as yet unexplored questions. In terms of trade and investments, who or where does India place its chips? What are the trends in India's trade and investment over the past few years? Does India plan its outward investments at all?

If yes, then does it do so based on existing bilateral and multilateral relations, or with a view to building assets for future returns? We address a few of these questions here and in the course of our analysis also examine if India could potentially use overseas direct investment (ODI) as an economic tool to further its strategic, geopolitical goals.

A nation's desirability as an investment destination is measured by its foreign direct investment (FDI) inflows. In most developing and emerging economies, this is also a measure of robust growth. However, while FDI receives the bulk of attention, its counterpart – overseas direct investment (ODI) receives little to no mention, let alone planning or attention.

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As far as trade and foreign policy are concerned, focusing on ODI outflows and measuring their impact on bilateral and multilateral trade is equally necessary. More so even because it can be a useful strategic tool in a nation's foreign and trade policy arsenal.

Trade has always been the driver of economic integration at the regional level and of economic co-dependence at the bilateral level. While the economic benefits of trade are apparent and capitalised on by most, the strategic benefits of trade need to be highlighted more often – specially to inform better foreign policy decisions.

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India needs to reduce her focus on development assistance and soft diplomacy, and balance it out by working on building economic relationships in the neighbourhood

It is clear as day for anyone to deduce that wealth wields influence. Strong economic relations help build any nation's influence, as is clearly seen in the case of countries like the United States and China.

In India's case, strong bilateral and multilateral economic relations will determine which countries stand by us in our times of need. There have in fact been instances of where India's economic relations with another nation have helped either nation to get through some tight spots, both economically and strategically.

Take for instance, India's trade with Iraq and Iran. India chose to meet her oil needs through imports from Iraq during US sanctions, and these were done through innovative mechanisms such as Oil-for-Food Programme through which India was able to pay for oil through delivery of essential commodities to Iraq. In fact, India increased its crude oil imports from Iraq, leading to an increase in trade from USD 5.7 billion in 2006-07 to USD 20.52 billion in 2012-13[1].

Medical aid was another important aspect of this trade. Iraq had always been one of India's largest export markets before the onset of the Gulf War. It was only because of India's historic diplomatic and economic relations with Iraq that allowed for the timely evacuation of all 80,000 Indians in Iraq prior to the 1991 Gulf War[2].

Strong economic relations also led to the support of Iraqi government for evacuation of Indians from the country in 2014, at the peak of the conflict with ISIS. Similarly, India's steady trade with Iran also stood us in good stead when during US sanctions on Iran over their nuclear program, Iran agreed to accept payment for their oil in Indian rupees[3].

Even more importantly, India has been a strategic investor in the Chabahar Port, which ensures India's connection to Eurasia. It is for this reason that despite the low convertibility of the Indian rupee, the Iranian administration

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continues to repose trust in India as both a customer and a trade partner. Now, at the time of sanctions again, Iran is using Indian rupees to buy sugar from India[4].

Israel's approach to building ties with India is a noteworthy case study on building strategic ties using economic or trade tools. Even though India had voted against the creation of Israel in 1948 at the United Nations, when India needed arms during the 1971 war and requested the same, Israel responded. Israel was able to come to India's aid again in 1999, when ammunition and missiles were required during the Kargil War.

Despite pressure from the US on delaying arms deliveries to India, Israel took the decision to speed up deliveries and kept the supply going. It was post Kargil, in 2000 when high level ministerial exchanges began between India and Israel[5]. India has not looked back since, and the India-Israel relationship has gone from strength to strength.

These economic ties that complemented diplomatic ties were what helped India at the time of US sanctions post the Pokhran Nuclear Test. At the time when the US decided to withdraw all economic aid, credit and credit guarantees, and opposed any kind of economic lending to India, it was India's economic ties that helped her. All trade in technology and strategic materials was banned, credit and loans were also stopped under the sanctions.

However, trade in essential commodities such as oil, natural gas and even ammunition continued with the support of nations like Iran, Iraq and Israel. India's prescience in ensuring trade was spread across partners and no dependence on a single partner existed, helped it take a stand and bide its time.

A time that arrived within the decade and India received a waiver from the Nuclear Suppliers' Group to pursue civil nuclear agreements with other nations[6]. The US rolled back sanctions of its own accord. Not only because history

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came calling in the form of 9/11, but also exports from several American states took a hit and their industry suffered as a result[7].

While it is evident that trade and economic relations have particular foreign policy and strategic significance, given examples do not particularly highlight how ODI can be used as a foreign and strategic policy tool. For this, we examine the approaches adopted by the US and China.

With the establishment of the Bretton Woods system for the management of a new financial order in the post war years, the US led the charge on the creation of a capitalist, free-market, international order[8]. It has championed the cause of removal of trade barriers and free flow of capital across borders. In the process, it became the world's largest foreign direct investor, as well as recipient of the largest foreign direct investments.

Coincidentally, China capitalised on the FDI from the US to build scale in its manufacturing sector. Ranging from textiles to defence technology, China used FDI inflows during its transitionary development years to build capacity and consequently used ODI outflows to create resource bases in foreign nations.

A US Senator, John Cornyn said in a statement last year that China had *"weaponised investment"* to siphon off US advanced technologies over the years, and consequently undermine their defence industrial base[9]. While this is still debatable, China has been creating a formidable resource base through a decidedly Chinese style of ODI.

Chinese ODI spans the breadth of 90 countries and sectors ranging from services, manufacturing, resource exploration and extraction to transport, communications, finance and hospitality[10]. China's initial patterns of ODI therefore served a four-fold purpose.

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One, promoting the export of commodities it produced, therefore ensuring an efficient trade balance. Two, securing of natural resources either for present or future use. Three, controlling the distribution of these natural resources to other countries, and four, to ensure Chinese presence in the form of businesspeople across the globe. The latter has been the main reason for the shift in recent years of Chinese ODI to developing or poor economies, especially in nations that lie on the One Belt, One Road (OBOR) initiative axis.

However, the pattern of investments has also shifted to what are generally recognised as poorly governed nations, mainly Africa and Latin America, which also meant that these nations' governments can be influenced from within, therefore hinting at a strategic rather than economic choice.

While the general opinion is that China's investment and lending patterns in these nations has been to monopolise strategic resources like copper, cobalt and oil, there is speculation on whether these investments have truly paid off. Given the poor governance environment in the nations where these investments are made, production from mines has been delayed and a decline in international oil prices along with overinflated oil reserve estimates has led to poor returns on investment.

There is therefore an alternative perspective that China has stretched itself thin with both the variety and the volume of its ODI, which is another way of asking at what point strategic investment decisions make less sense than economic ones.

Irrespective of the volume of ODI and the returns on it, the US and China are leading investors across the globe today, which puts them in positions of influence. Influence over national policies, decisions taken in companies (by dint of mergers and acquisitions) and over natural resource extraction.

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The same cannot be said of India. Not merely because India does not have the financial wherewithal to approach, let alone match US and Chinese levels of ODI, but also because India's overall ODI as it stands today is dismal and haphazard. The development assistance that India proffers to most partner nations cannot be counted as ODI as it does not lead to value addition.

Table 1 provides the trends in US, Chinese and Indian ODI according to UNCTAD data. India's ODI volumes are scarcely a fraction of US and Chinese volumes. For India to even conceptualise competing with either country at a global level requires putting its house in order, that is concentration on its own sub-region or immediate neighbourhood.

Here too, India's own data on ODI reflects a sad state of affairs. None of India's immediate neighbours reflect among the top ten destination countries for ODI. India strategically invested in Iran, Iraq, and Israel for good reason, but

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Table 1. Annual Overseas Direct Investment Outflows 2010-2017 (USD millions)

Country/Year	2010	2011	2012	2013	2014	2015	2016	2017
United States	277,779	396,569	318,196	303,432	294,754	262,569	280,682	342,269
China	68,811.3	74,654	87,803.5	107,843.7	123,119.9	145,667.2	196,149.4	124,630
India	15,947.4	12,456.2	8,485.7	1,678.7	11,783.5	7,572.4	5,072.4	11,304.4

Source: World Investment Report 2018, UNCTAD

that vision seems to be missing. If indeed trade builds economic co-dependence which in turn boosts political stability, India's strategy for ODI must be based on a long-term vision of how and where India would like to wield influence.

South Asia is definitely a priority today, as is the BIMSTEC region. Not only because it is the least economically integrated region in the world, but also because India and especially its newly elected administration have oft-repeated the goal of making India a regional power. India cannot afford to be a regional power at the behest of or while depending on other world powers (US and China included). If India is to consolidate its power in the sub-continent, it must step up its game in its own neighbourhood.

India's categorisation of ODI data is limited to the top ten destination countries, the major sectors and the overall ODI outflows. While Singapore comes in at a consistent second place, Mauritius stands out as a top ODI destination, which hopefully has more significance after the renegotiation of tax treaties between the two countries.

India's unwavering focus on soft diplomacy and development assistance has put it in a quandary. This was apparent in the Maldives debacle in 2017. The island nation had requested financial investment or loans, as well as high-level diplomatic or state visits for a few years. Both requests were constantly ignored. In fact, India had in a gesture of trademark soft diplomacy gifted two Dhruv Advanced Light Helicopters (ALHs) to the Maldives sometime earlier.

However, when India's concern over the Maldives election process came to the fore, the island nation made its displeasure known by returning India's gift[11]. India's track record at managing regime change in its immediate neighbourhood has been disappointing, if not a downright failure. The lack of economic ties with the Maldives, which had been requesting the same, stood out in this case.

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More recently, as the US levied sanctions on Iran again, India had to resort to paying with Indian rupees. However, the situation was complicated when sanctions were adjusted to blockade all transport of oil and crude from Iran, and an American aircraft carrier was deployed to the vicinity. India has since had to stop all oil imports from Iran[12].

Indian exports to Iran are also set to suffer. Once rupee payments dry up in the limited exposure UCO Bank account of Iran, exports to the country will stop unless oil imports begin[13]. The latter seems unlikely in the short term, given US sanctions and the unmoving stance of the Trump administration.

Much as India had to succumb to US pressure on Iran, it had to tread carefully with Maldives as it turned to China for the finances it required in its period of crisis. India had no say in either matter, and will continue to have no say in any matter unless it gets its own economic strategy in order.

With careful planning and prioritisation of strategic goals, the newly elected administration could use ODI as an economic and strategic tool to great effect. While India cannot follow either the US or the China models, given a lack of military wherewithal for the former and financial wherewithal for the latter, nothing prevents India from coming up with her own ODI approach and strategy.

India needs to reduce her focus on development assistance and soft diplomacy, and balance it out by working on building economic relationships in the neighbourhood. Countries prefer value addition and the economic fillip provided by FDI inflows, and wherever possible either through the public or private route, India must provide what ODI it can to its partner nations.

Even if the effort is limited in terms of volume of investment and geography covered, it still needs to be carefully targeted to ensure maximum economic and strategic returns.

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India's limited assets can still be put to good use if done so with careful consideration. If nothing else, the administration would do well to remember that 'crippling an economy' is apparently more acceptable, for right or wrong reasons, and perhaps even more efficient than destroying a nation. ■

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India at a crossroads

The global economy is entering a turbulent phase. Abhijit Mukhopadhyay considers where India sits in an era of bilateral and plurilateral trade agreements

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Slowdown in trade

Looking at the trend in the changes to world export growth since the 1980s, a few stylised facts become quite clear. First is the acceleration in world trade since the inception of World Trade Organization (WTO) in 1995. This acceleration lasted till the world was hit by the trans-Atlantic financial crisis of 2008, which originated from the housing mortgage segment of the USA financial market.

In the context of current turbulent international trade scenario, probably it will not be an exaggeration to say that the 'golden period for international trade' during the period between 1995 and 2008 is over now. And that 'golden period' is now followed by a conflicting time of 'tariff war' – which is threatening to spoil all the positive influences the 'golden period' imparted on the world economy.

After a sharp drop in world export volume in 2009, the growing trend showed what initially looked like a recovery in subsequent years. But, the data since 2010 exhibits a stagnating trend at the same level – as if the volume of world exports has reached a mountain table-top. In fact, world exports once again started declining in 2015 before going up in 2017.

However, the overall volume keeps on showing similar mountain table-top characteristics. This is a distinct sign of slowdown in international trade and business – whichever way one interprets the data.

Growing influence of China

China's growing influence in world trade is quite evident from the lists of top exporters and top importers. While China is the top exporter of the world, the country stands next to the USA as the second largest importer in merchandise goods.

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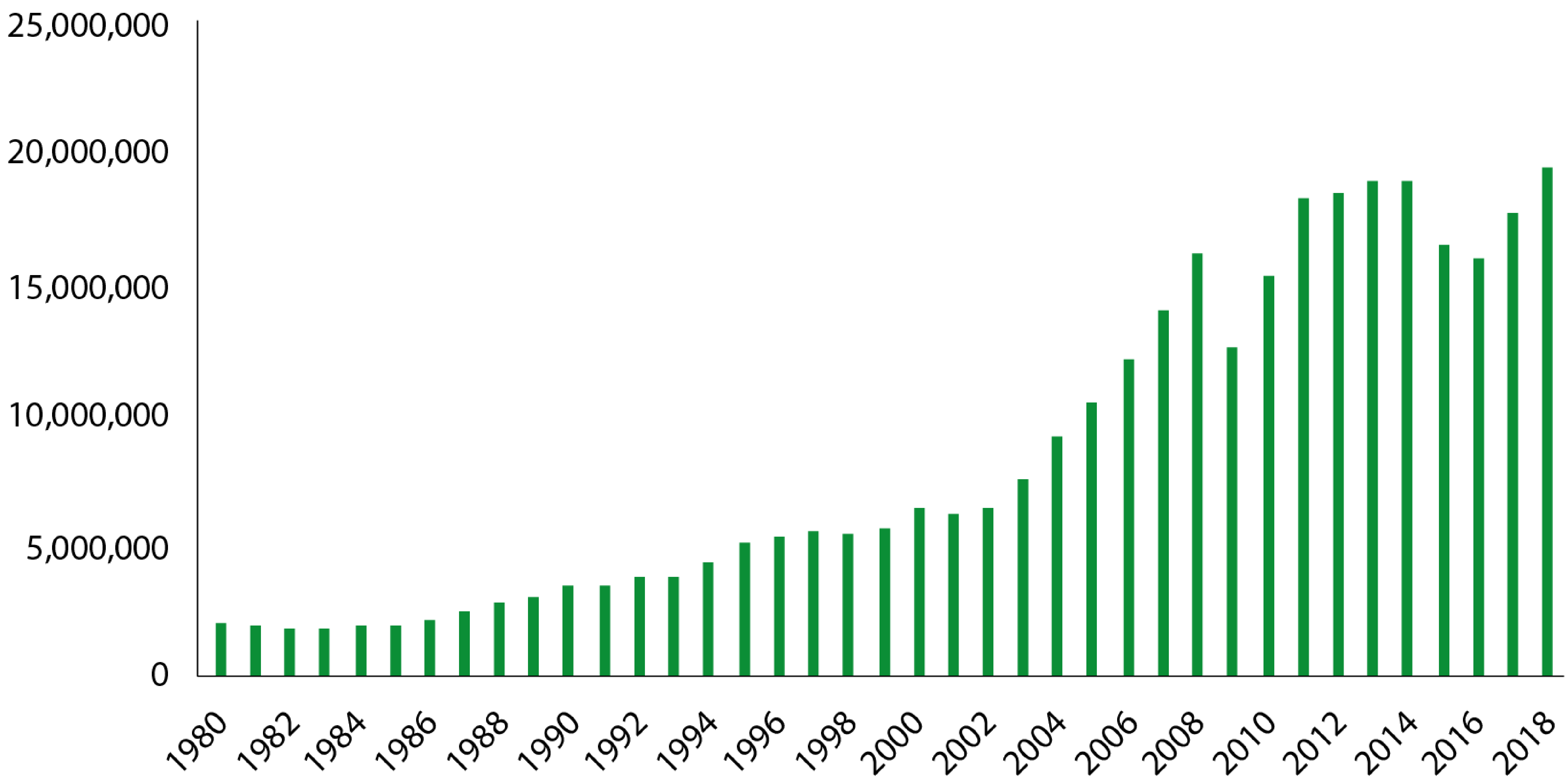
Figure 1. Trend in World Exports since the 1980s (in million US dollars)



Source: www.wto.org

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This growing influence of China is one of the implicit reasons behind its ongoing war with the USA. Official reasons may tend to project different reasons for this trade war, but at a broad level it looks like a battle for supremacy in the international business arena.

Historically, if one looks into the volumes and direction of trade in the last thirty years or so the major direction of trade was concentrated towards Northern America and Europe. This tendency started shifting after China's accession in WTO in 2001.

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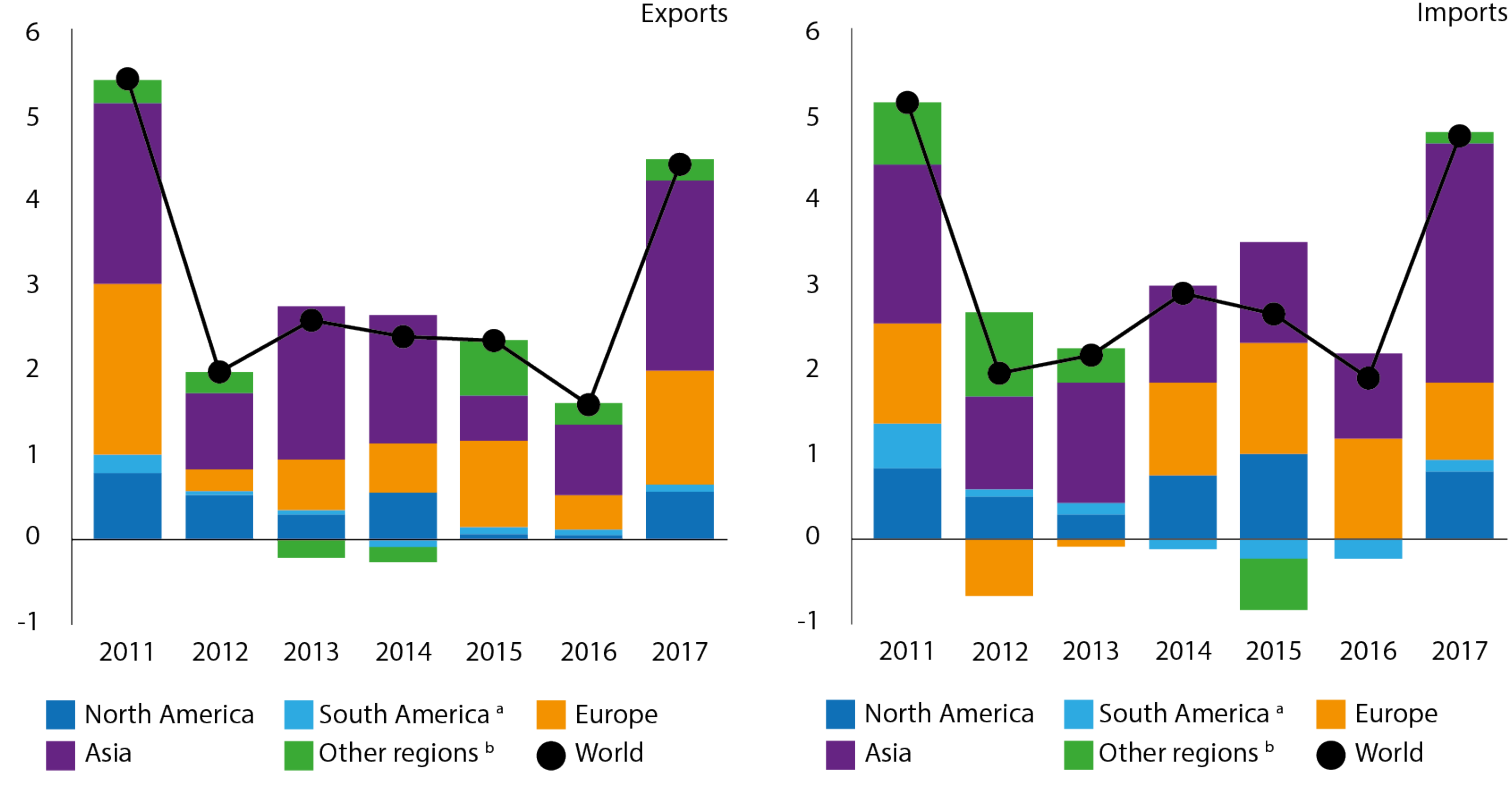
Table 1. Regional Composition of Trade in 2016

Top importers			Top exporters		
	Import (US$ million)	Share (%)		Export (US$ million)	Share (%)
United States	1,945,159	13.29	China	2,077,109	14.08
China	1,216,714	8.62	United States	1,292,436	8.76
Germany	916,090	6.26	Germany	1,145,973	7.77
United Kingdom	610,647	4.17	Japan	661,678	4.49
Hong Kong China	582,557	3.98	France	488,825	3.31

Source: World Integrated Trade Solution (WITS), World Bank

Figure 2. Contributions to World Trade Volume Growth by Region, 2011-2017



Notes: a) Refers to South and Central America and the Caribbean. b) Other regions comprise Africa, Middle East and the Commonwealth of Independent States (CIS), including associate and former member states.
Source: World Trade Statistical Review 2018, WTO

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A prolonged debate among the leading developed countries preceded before the accession, but China rapidly but surely kept on making giant strides in international trade, particularly exports. A good export-oriented strategy made Chinese GDP grow in tandem.

According to World Economic Forum data, China's GDP touched $14 trillion mark in 2018. The gap between China, the second biggest economy of the world, and the USA, the biggest economy of the world at $20.4 trillion, narrowed considerably in around 17 years.

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How India inks new agreements with potential new partners... will decide whether the country will be able to avail exports as one of its near future economic growth drivers

The contribution of different regions in world trade volume growth during the period between 2011 and 2017 also confirms this trend. Both in terms of exports and imports, the growth was largely driven by Asia. And in that Asian growth story, China played a significant role.

Age of trade wars

The current trade war started in early March 2018. The USA fired the first salvo, as it raised tariffs on $92 billion worth of imports covering steel and aluminium products, washing machines, solar panels and a range of other products, in which China holds substantial export shares in the USA. Affected countries by this set of tariffs include Brazil, Korea, Argentina, India and the EU (European Union) – apart from China.

The second dimension, unveiled at the end of March, was American President's directive to the United States Trade Representative (USTR) to take all possible actions against China, including using penal tariffs on its exports, for *"harming American intellectual property rights, innovation, or technology development."*[1]

In subsequent developments, the USA has brought in 25 percent tax on a second tranche of goods worth $16 billion by August 2018. These goods include motorcycles, aerials and optical fibres[2]. The measures are part of American president's broader 'America First' approach.

In a natural reaction, all affected countries retaliated with counter tariffs. The EU announced 'rebalancing measures' targeting 340 American export items valued at $7.2 billion, roughly equal to the amount of its steel and aluminium exports adversely affected by the US tariff.

Canada announced retaliatory tariffs of up to 25 percent on the US imports of steel and aluminium, orange juice, whiskey and other food products – having a value of around 16.6 billion Canadian dollars, which is the value

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of targeted Canadian steel exports to the USA. Mexico announced similar measures on a number of products, including dairy, horticulture and meat products, 'up to an amount comparable to the damage caused by the US action'[3].

In early April 2018 China decided to retaliate against the USA by imposing tariffs on 128 products, which accounted for $3 billion US exports to China in 2017. China proposed imposition of a 15 percent tariff on the first set of products, including fresh fruits, dried fruits and nuts, wines, modified ethanol, American ginseng, and seamless steel pipes.

On a second set of products, including pork and its products, and recycled aluminium, a 25 percent tariff imposition was proposed. Continuing the tit-for-tat policy, China further decided to impose additional tariffs of 25 percent on chemical products, medical equipment and energy imported from the USA[4].

The Chinese government on 8 August signalled its willingness to impose retaliatory tariffs on US goods – just ahead of China's top leaders gathering for their annual summit. This is reportedly in retaliation to *"Trump administration's publishing a list of Chinese products that will confront 25 percent duties starting on 23 August 2018"* – raising the value of tariffs to $50 billion, up from the current $34 billion[5].

And this willingness later translated into additional tariffs on $60 billion worth of imports from the USA. The Customs Tariff Commission of the State Council unveiled lists of 5,207 American products which will face additional tariffs of 5 percent to 25 percent. The effect of this set of tariff can be quite significant in the near future[6].

The US government again hit China with a new set of tariffs affecting $200 billion worth of Chinese goods from the middle of the month of September 2018. Unlike the previous set of tariffs which were mainly aimed at

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capital goods, this will hit thousands of consumer goods made in China, ranging from luggage and electronics to housewares and foods. Imposition of tariffs will ultimately result into increase in these goods' costs and prices[7].

This action apparently has been undertaken by the USA to address China's indifference to address its 'unfair policies and practices'. China, meanwhile, deeply regretted the decision and conveyed that it has *"no choice but to take counter-measures."*

Much to the relief of many countries of the world, on 1 December 2018 the standstill agreement reached between the USA and China at the sidelines of G-20 meetings had brought a much-needed breather for these two countries and the rest of the world. Both countries agreed not to impose any tariffs for the next 90 days.

However, this temporary truce looked inadequate to resolve the deeper trade problems in their relationship and seemed to be a more short-term political agreement than a substantive step towards resolution of existing problems.

As expected multiple rounds of talks between these two countries failed to end the deadlock, and it is expected to continue in spite of both the countries being parts of coming G-20 meet. In addition, the situation worsened in the interim period as the USA stepped up its efforts to ban Chinese tech company Huawei from doing any business with American companies. American Federal Government's decision to expand official ties with Taiwan is expected to further aggravate the situation.

India caught in the crossfire

India, perhaps unwillingly, also got embroiled into this trade war. The Indian government imposed higher duties on

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29 key US imports (applicable from 18 September 2018), in which the value of actual imports stood at $1.5 billion in 2017-18.

This has been ostensibly done to offset the estimated loss faced by India after the US government hiked import duties on steel and aluminium in May this year[8]. Needless to say, if the tariff war goes on then more tariffs are bound to be applied from Indian side on other sets of goods as well.

In a latest related development, in March 2019 the US government decided to withdraw trade concessions given to India under the Generalised System of Preferences (GSP) – a programme that allows duty-free entry for certain products into the US market.

Under GSP, the trade between these two countries grew over the years, and reached $6.2 billion in 2018. No other country's GSP export value has ever exceeded India's exports under GSP in the last two decades cumulatively. Though officially India downplayed the effect of GSP withdrawal, sectors like gems & jewellery and apparel will be adversely affected[9].

Subsequently, the USA indicated postponement of withdrawal of GSP for India till the elections are over[10]. However, immediately after the elections are over American administration indicated that the USA has no intention of going back on the decision to terminate GSP facility – terming the suspension a *"done deal."*[11]

Meanwhile, the trend in Indian exports shows an almost identical pattern to the world trend. After starting to grow healthily since the inception of the WTO and increasing manifold till 2008, the absolute value of Indian exports received a jolt in 2009 in the immediate aftermath of financial crisis.

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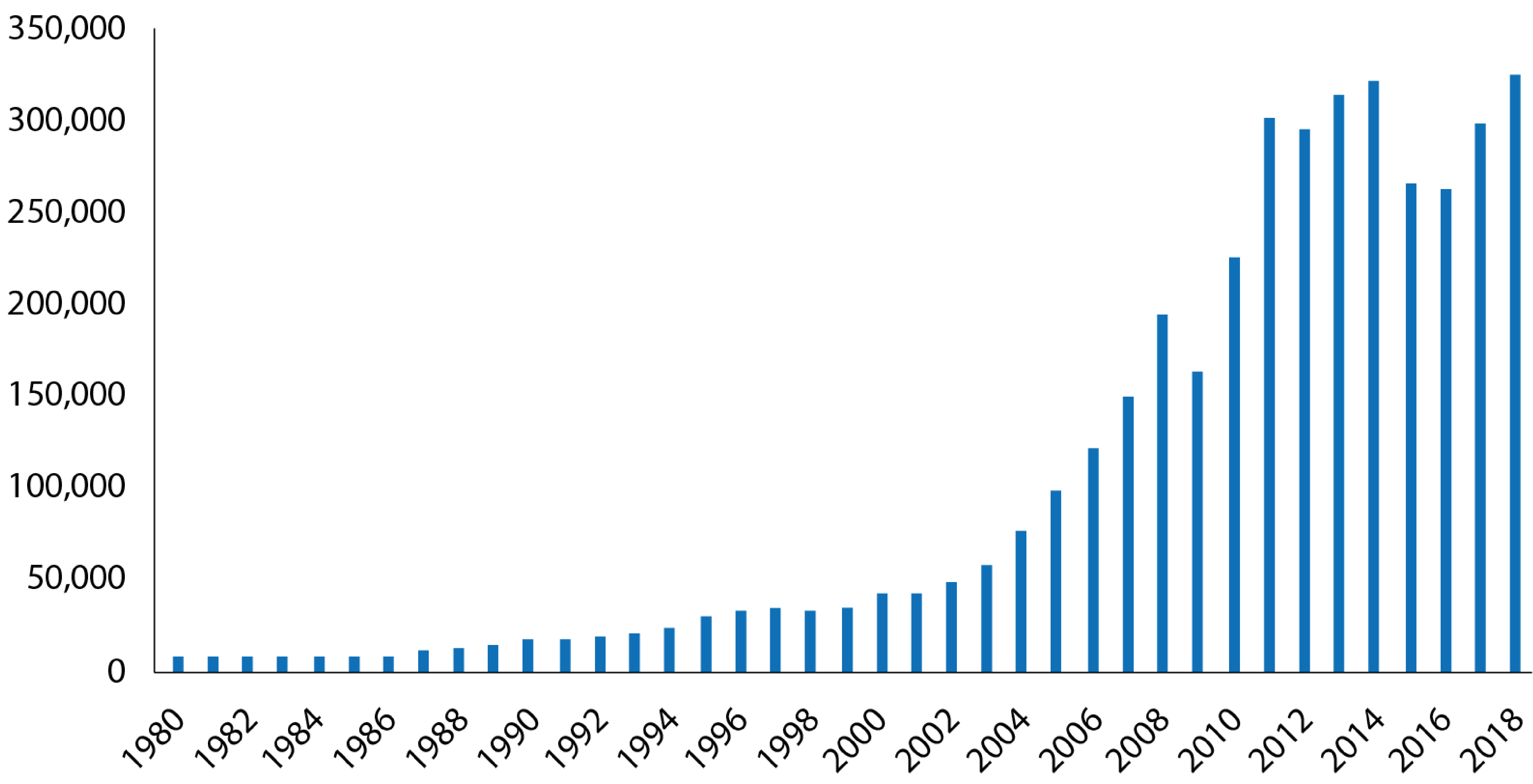
Figure3. Trend in India's exports since the 1980s (in million US dollars)



Source: www.wto.org

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It then recovered, started growing again for couple of years – before reaching a 'mountain table-top' pattern – similar to the world exports growth. Almost repeating the world exports trend, Indian export volume also went down in 2015 and 2016. Subsequently, it went up in 2017 and 2018 but remains more or less at the same level as in 2014.

Indian exports trend aligning broadly with the world exports trend highlights two important aspects. Firstly, India is closely aligned with the rest of the world and as a result if there is turbulence in the international trade arena then India will also get negatively affected. Secondly, if world trade is unable to recover then India has to contemplate a different strategy if the country wishes to maintain its economic growth momentum.

While most of the recent growth success stories, including China, were pivoted through an export-oriented strategy, similar trajectory option may not be available to India, given the current tariff war.

In that case, like other important economies of the world India will have to find new trade partners, mainly through the route of bilateral and plurilateral agreements. And the country has to find the partners as fast as possible as all significant economies are currently scouting for partners.

A flurry of efforts to chalk out agreements – like TPP (Trans-Pacific Partnership) and RCEP (Regional Comprehensive Economic Partnership) – in the recent past is a clear indication of that desperation to find trade partners.

Eventual failure of the member countries to arrive at a final agreement in both these prospective regional trade agreements (RTAs), on the other hand, shows the immense difficult situation the world trade is currently in – as a result of which finalisation and concretisation of such RTAs have become incredibly difficult task.

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India has to reconcile to these new realities of international trade, and inviting BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) countries' heads in the inauguration ceremony of the freshly elected government is a good start.

How India inks new agreements with potential new partners, particularly in the Asian region, and also the choice of trade partners will decide whether the country will be able to avail exports as one of its near future economic growth drivers. ■

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Brexit delay will not postpone deglobalisation

Peter van Bergeijk argues that Brexit and the Trumpian trade wars are symptoms rather than causes, as the world had already started to fundamentally change before either came on the horizon

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Many associate Brexit and the Trumpian trade wars with the start of a new phase of deglobalisation. This column argues that we should view them as symptoms rather than causes, as the world had already started to fundamentally change before either came on the horizon. Neither the delay to Brexit nor the extended pause in the US–China tariff war means that the risks of deglobalisation have diminished.

While economists agree that the multilateral trading system is under pressure and that US trade wars and the Brexit chaos provide examples of behaviour that is completely new for the present generation, it is still unclear if we are actually in the midst of deglobalisation (O'Rourke 2018, 2019). Deglobalisation would imply a fundamental change in our economic environment but not a new phenomenon from a long-run perspective, because a period of significant deglobalisation also occurred in the 1930.

We can glean from history the pattern of emerging deglobalisation (van Bergeijk 2019). Figure 1 illustrates this historical perspective of alternating waves of globalisation (a more open world economy) and deglobalisation by means of the change in the world trade to world output ratio[1]. The figure shows that strong globalisation phases are followed by decades in which the world's trade-to-GDP ratio decreases or stagnates. What does the current pattern of emerging deglobalisation look like?

Deglobalisation 2.0

The start of the deglobalisation phase is a major economic crisis that reduces demand, increases uncertainty, and destroys confidence. Next follows a collapse of world trade and investment (Baldwin 2009). The collapse marks the end of decades of intensifying globalisation, and increasingly free international trade and capital flows. The start of a period of deglobalisation at first remains hidden under the veil of initial economic recovery, but later becomes clear and measurable.

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Figure 2 shows this pattern for the most recent phases and turning point. In the early 2000s openness (on the vertical axis) increased until it reached an all-time high in 2008 and from there deglobalisation sets in. Deglobalisation actually gains momentum around 2013 (and this leads to the recognition of the world trade slowdown; see Hoekman 2015).

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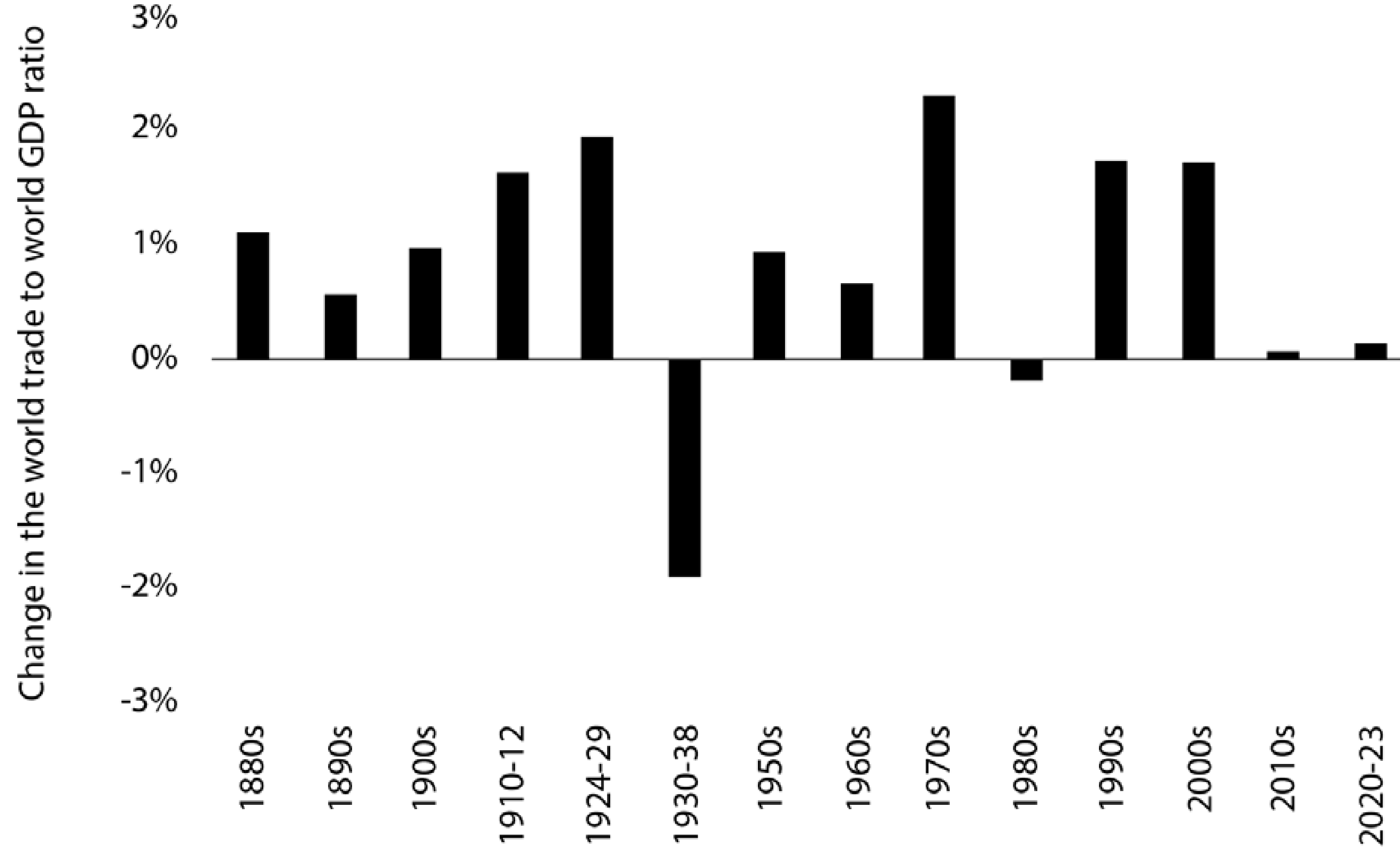
... rules and regulations should be redesigned to meet the requirements of globalisation and, as recent experiences have made crystal clear, also meet the challenges posed by a wave of deglobalisation

Figure 1. Change in openness 1880-2023 (average annual change per decade of the world trade to world production ratio)



Notes: The estimate for 2010-2023 is (partly) based on IMF forecasts. Note that the number of available years is limited in the 1910s and 1930s and the absence of the 1940s.
Sources: Maddison (1995, 2001), World Bank World Development Indicators, and IMF World Economic Outlook data base.

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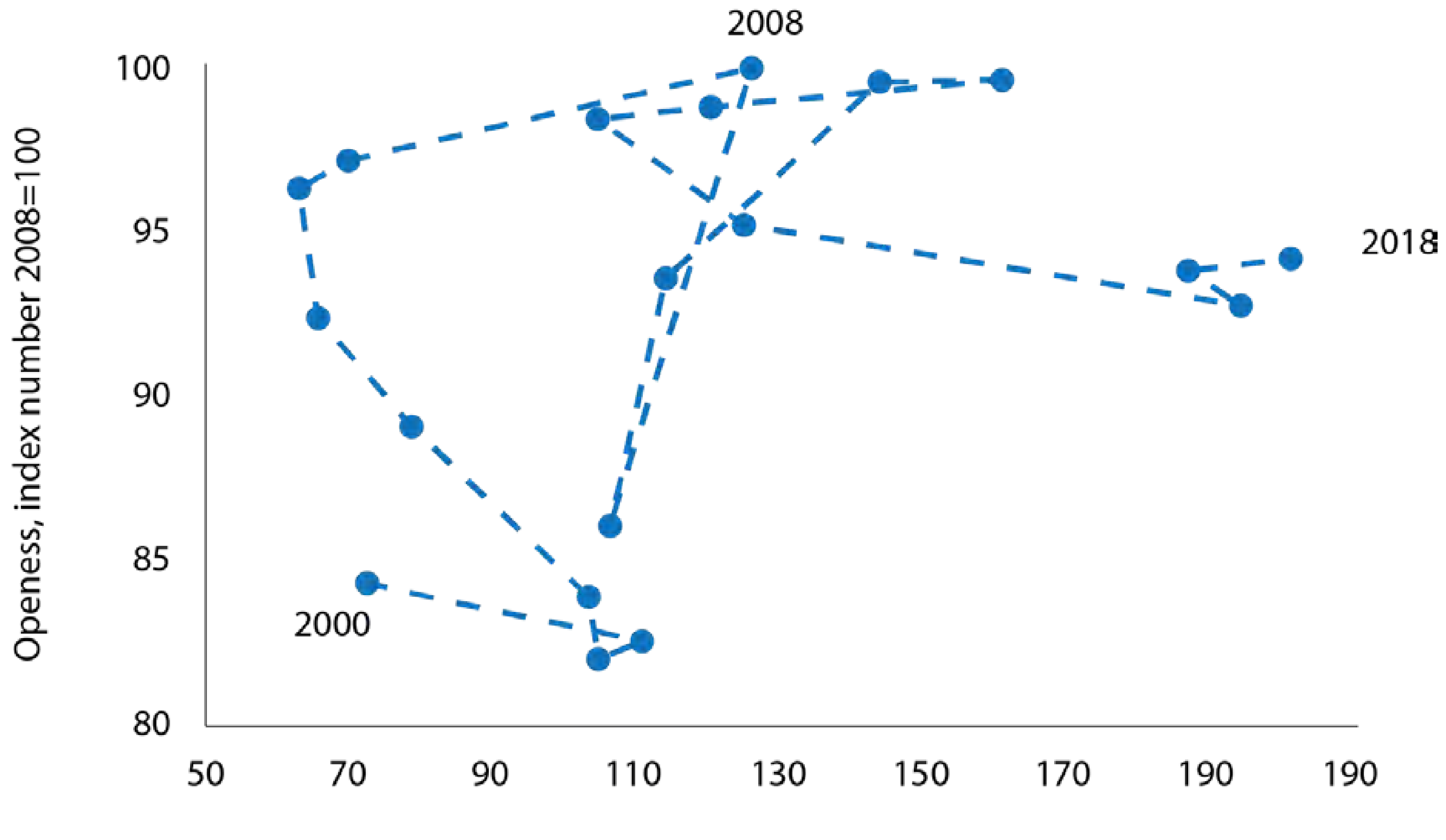
Figure 2. Openness and economic policy uncertainty of the world economy



Sources: Davis (2016) and data underlying Figure 1.

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At the same time, uncertainty (on the horizontal axis) increases and moves into unknown territory. The figure makes an important point: deglobalisation started well before Trumpism and Brexit came on the horizon. Rather than being the causes of deglobalisation, we should therefore treat them as symptoms – the world had already started to change fundamentally and the wave of deglobalisation that we are currently experiencing may be here to stay for quite some while.

The major difference between the 1930s and the 2000s is that authoritarian countries in the era of the Great Depression where more likely to reduce trade and openness, whereas reductions of trade and openness during the Great Recession were more likely to occur in democracies (van Bergeijk 2018). To some it may be especially worrying that the clearest manifestations of deglobalisation occur in democracies, because democracies built the Bretton Woods institutions (and the EU).

Indeed, the popular anti-globalist movements currently seem to hit the system at its heart. It is unwise to downplay the issue of populism, but it is important to recognise that the turning point of globalisation in all major economies appears to have occurred well before the recent trade shocks.

This is why the phenomenon of deglobalisation requires a much broader conceptualisation than the 'backlash from globalisation' or the 'retreat from globalisation' on which research is already well underway. Deglobalisation in the sense of reduced openness also occurs in countries where popular support for globalisation is still strong, and this is a research puzzle that has not yet been addressed.

Drivers of the turn towards deglobalisation

Phases of strong globalisation carry the seeds of their own destruction, that is, such phases generate the forces that ultimately set limits and force a retreat of internationalisation. A first mechanism operates in national economies:

redistributing the gains from further openness to the people who lost from globalisation becomes more difficult at higher levels of globalisation.

This is a double-edged sword. In the initial phase when a country starts to open up, the economy experiences steep increases in productivity and welfare, but once the low-hanging fruit has been picked the same increase in the intensity of globalisation brings less benefits to the economy. At the same time the costs of redistribution at a low intensity of globalisation are initially small, but they are on an increasingly steep path. This shift in the (marginal) costs and benefits of further globalisation shifts the political balance towards less openness.

A second mechanism operates in the international arena. During both the Great Depression of the 1930s and the Great Recession, the leading economic power of the time deserted the rules of the game that underpinned globalisation and were actually designed by its initial interest in an open trade and investment climate. An open stable and relatively peaceful system, however, allows other countries to develop and grow faster, capturing a larger share of the benefits of globalisation.

In the early phase of globalisation a smaller share from a larger economic pie may still be an improvement. At some point the costs of being a hegemon, however, outweigh the benefits. It is ironic, but sad, that the US and the UK (the hegemons that helped to build a constellation in which trade, democracy, and peace were reinforcing aspects of the world order) are opting against global and European governance.

Cease fire?

Deglobalisation is a structural transformation of the world economy. Political turbulence can perhaps hasten this process. To some observers, delays to the big topical trade shocks may therefore seem to help to turn the tide. Brexit and 'Make America Great Again' are, however, symptoms of underlying processes that have already generated

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significant trade and investment uncertainty and this is already exercising a concrete impact on trade and investment flows as firms and consumers are adjusting behaviour in anticipation of further trade shocks.

The delay of the deadlines provides a pause at best. It is therefore pertinent to rethink global economic governance and make it resistant to deglobalisation. A repositioning of the extent of internationalisation is manageable, but then concerted action is necessary to make the required changes in the rules and regulations of the world economic system. Those rules and regulations should be redesigned to meet the requirements of globalisation and, as recent experiences have made crystal clear, also meet the challenges posed by a wave of deglobalisation. ■

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1. The figure is intended to sketch a long-run perspective and thus by necessity focuses on merchandise trade in relation to world production. This of course ignores developments in services and financial flows.

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The cost of the Brexit vote

The latest OECD data suggests that the cost of Brexit has been £350 million a week since the referendum. Benjamin Born, Gernot Müller, Moritz Schularick and Petr Sedláček examine the future consequences

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It is hard to calculate the current cost of Brexit, because there is no obvious counterfactual. The original version of this column, first published in November 2017, calculated the cost by letting a matching algorithm determine which combination of comparison economies best resembles the pre-referendum growth path of the UK economy.

The results suggested a loss of 1.3% of GDP, or close to £300 million per week, since the vote took place. Subsequent updates using the latest OECD data suggest that the negative drag from the Brexit vote now appears to be roughly £350 million a week, but under current OECD forecasts we can expect the output loss to increase to about 4% of GDP by end-2020.

Our new estimates rely on a slightly revised approach. It not only uses real GDP, but also a number of additional covariates to construct the counterfactual doppelganger outcome. The approach is explained in detail in a paper that is forthcoming in the *Economic Journal* (Born *et al*. 2019).

We now estimate that the output loss due to the Brexit vote amounts to about 2.1% of GDP, or a cumulative loss of £50 billion, at the end of the first quarter 2019. This number corresponds to roughly £350 million per week. Broadly speaking, the drag from the Brexit vote has remained stable relative to our previous estimate. Yet, under current OECD forecasts, we can expect the output loss to increase to about 4% of GDP by end-2020.

The figure below compares actual output in the UK (blue) to the counterfactual UK economy that could have been expected otherwise (the 'doppelganger'). Our earlier estimates are shown by the black lines, while our most recent estimate is shown in red. As before, dashed lines indicate forecasts and the shaded area corresponds to one standard deviation of the pre-Brexit vote difference between the UK and its doppelganger.

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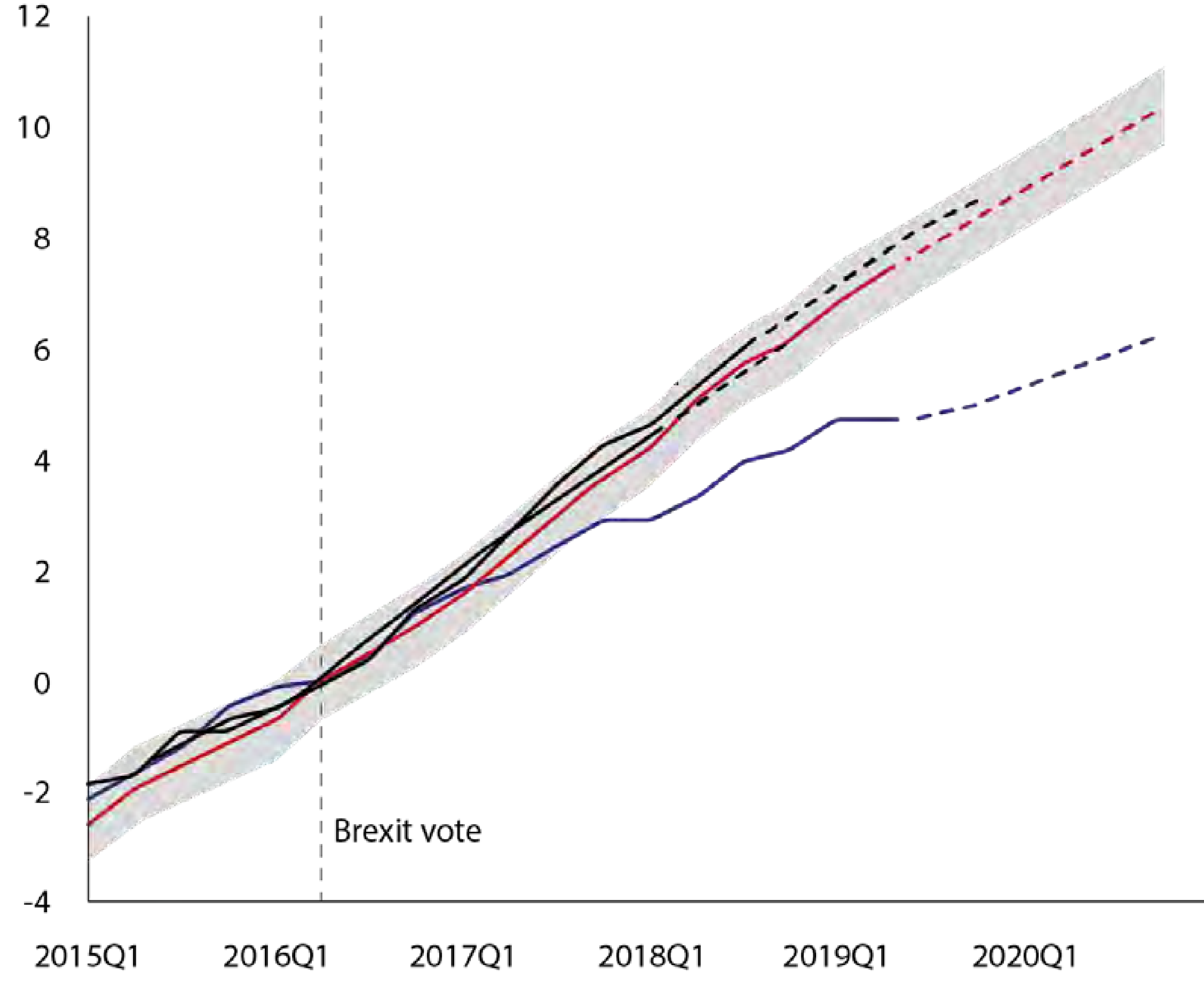

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Start of first column (published 1 October 2018)
In our original Vox column from 28 November 2017 (see below), we estimated the output costs of the Brexit vote that had already materialised since the June 2016 referendum. Our new estimate uses the latest OECD data to update and extend the estimates to mid-2018.

We now estimate that the output loss due to the Brexit vote amounts to about 2% of GDP, or £35 billion. The negative drag from the Brexit vote has increased somewhat since our last estimation and now amounts to roughly £350 million a week. Under current OECD forecast, we expect the output loss to increase to 3.4% of GDP by end-2019.

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Current estimates suggest that the economic costs of the Brexit vote will rise further – even before the UK actually leaves the EU

The figure below compares actual output in the UK (blue) to the counterfactual UK economy that could have been expected otherwise (the 'doppelganger'). The originally estimated doppelganger (black) is constructed using data from November 2017, while the latest doppelganger is based on the most recent data (red). As before, dashed lines indicate forecasts and the shaded area corresponds to one standard deviation of the pre-Brexit vote difference between the UK and its doppelganger.

Start of original column (published 27 November 2017)

There is huge variation in the estimated cost of Brexit. Most studies forecast that a reduction in trade or a fall in foreign direct investment (FDI) – or both – will reduce output. For instance, HM Treasury (2016) uses a gravity model to assess the economic impact in several scenarios, and concludes that losses could be up to 6% of GDP in the long term.

Yet the future relationship between the UK and the EU is highly uncertain (Baldwin 2016). As a result, estimating the cost of Brexit is difficult. Different assumptions about the deal that the UK will lead to different cost estimates.

That's why we take a different approach in a recent paper (Born *et al*. 2017). Rather than making set of assumptions which are bound to be controversial, and using them to forecast the economic costs of Brexit, we measure the *actual* output loss from the UK's decision to leave the EU. Our approach does not depend on having the right model for the British, the European, or even the global economy.

We do not assume a particular Brexit deal, or construct specific scenarios for the outcome of the negotiations. Instead we create a transparent, unbiased, and entirely-data driven 'Brexit cost tracker' that relies on synthetic control methods (Abadie and Gardeazabal 2003).

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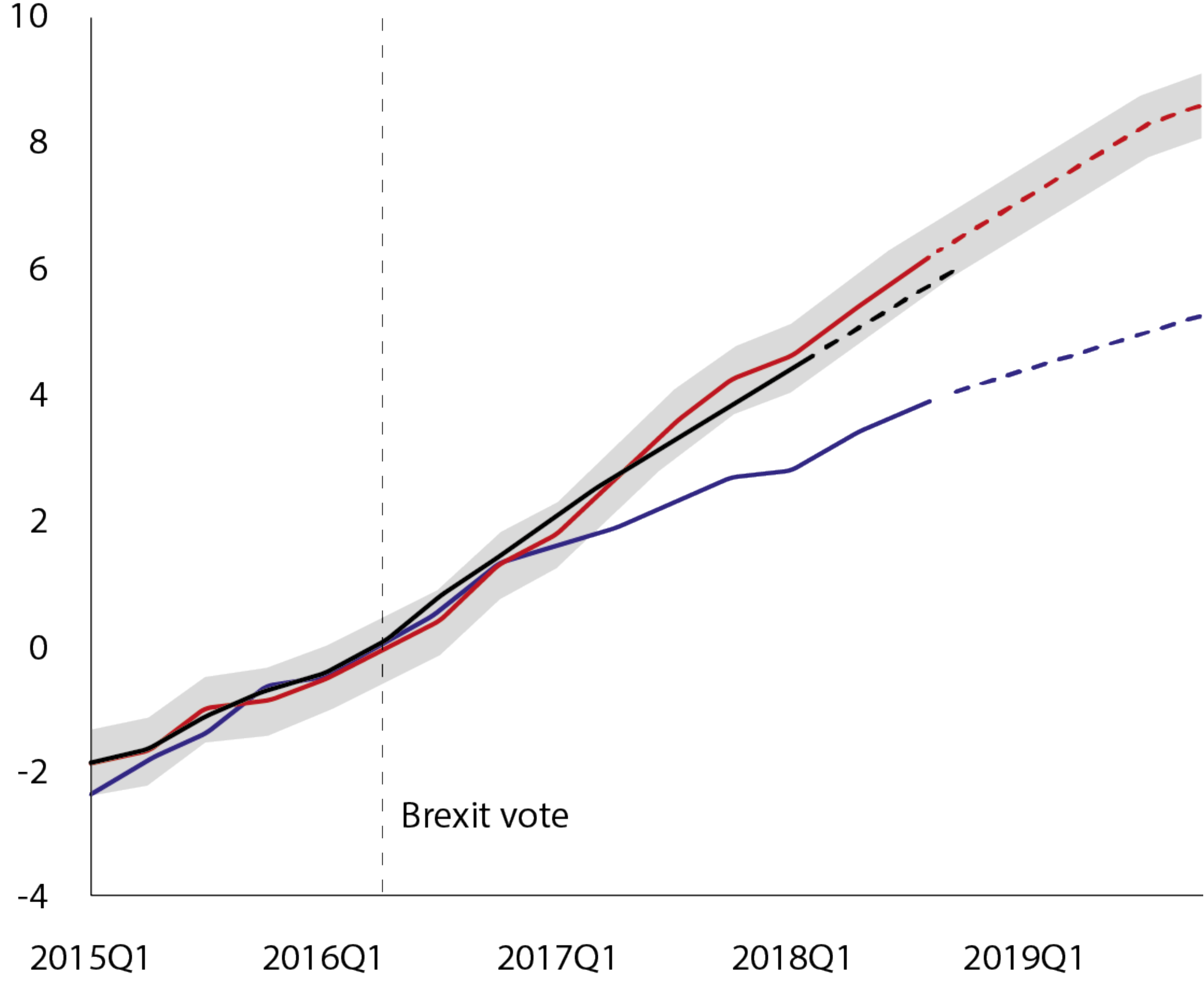

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What if the referendum had never happened?

Finding an appropriate counterfactual is a daunting task when the treated unit is a whole country (in this case, the UK). In the public debate, one common practice is to informally pick another country with a similar economic structure and compare outcomes.

For instance, one could compare the performance of the UK economy since the referendum to European countries such as Germany, or to the US or Canada. Yet clearly this is unsatisfactory. How can we know which countries to compare? Was their growth path pre-intervention really similar to that of the UK?

Our approach to determining the costs of the Brexit vote uses the same intuitive idea, but it formalises the approach in a statistical sense. We let an algorithm determine which combination of other economies matched the evolution of real GDP in the UK *before* the Brexit vote with highest possible accuracy. We use the period between Q1 of 1995 and the Brexit vote in Q2 of 2016. For this purpose, we consider indices of real GDP for 30 OECD countries, normalised to unity in 1995.

The algorithm choses the economies and weights assigned, not researchers. The better the algorithm-driven economic doppelganger for the UK economy as a weighted combination of other OECD economies, the more accurate our results are. For the UK, our matching algorithm attributes high weights to Canada and the US, but also to Japan and Hungary. These weights are open to replication by other researchers.

Figure 1 shows that our synthetic UK economy (red line) tracks the evolution of the UK (blue line) very closely before the referendum. The doppelganger had the same trend growth of the UK and exhibited very similar short-run fluctuations. For instance, it matches the fall in output during the Great Recession, and the subsequent recovery.

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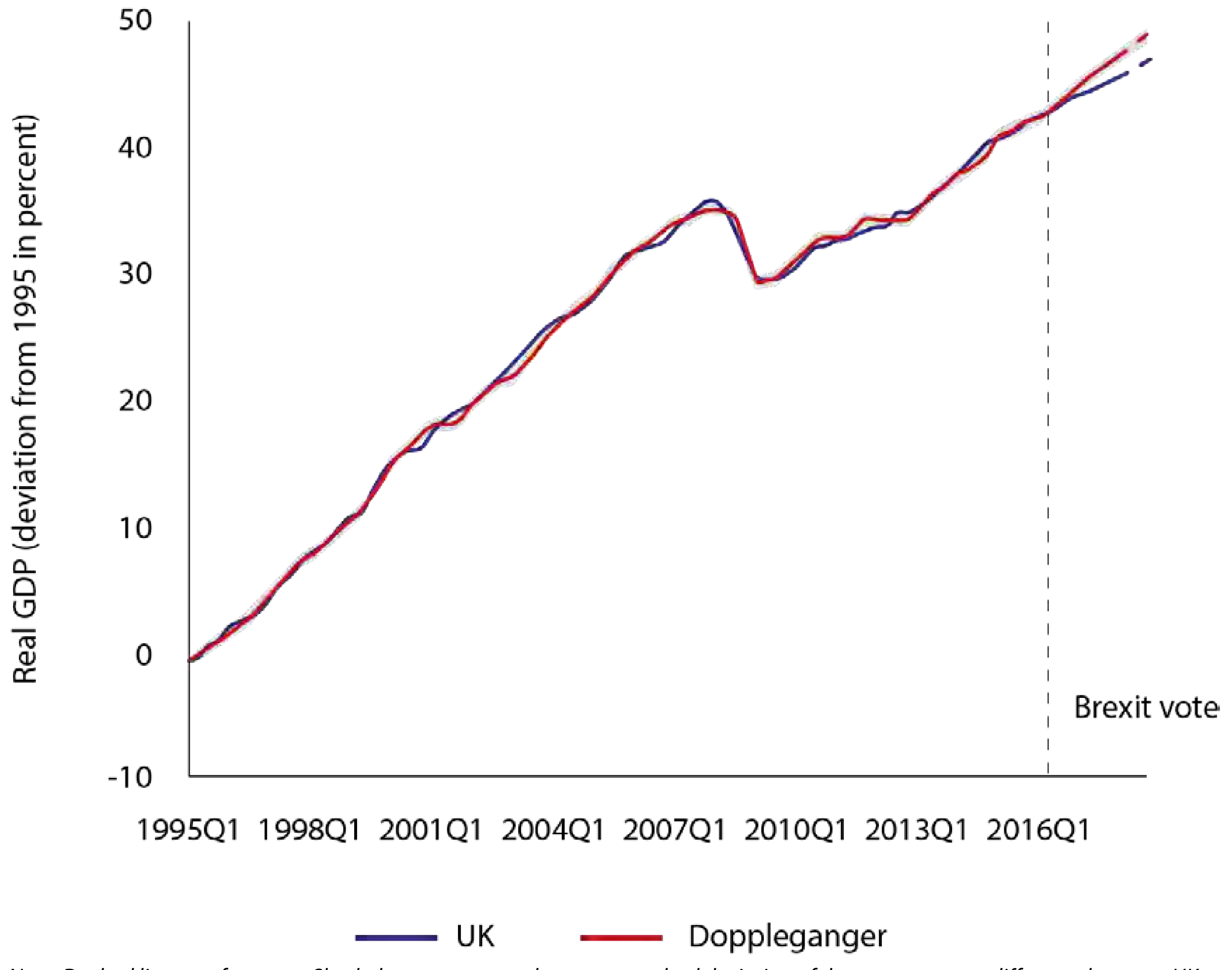
Figure 1. UK (blue line) versus doppelganger (red line)



Note: Dashed lines are forecasts. Shaded area corresponds to one standard deviation of the pre-treatment difference between UK and doppelganger.

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The economic costs of the Brexit vote

We then use the doppelganger of the pre-Brexit UK economy to quantify the cost of the Brexit vote. As the doppelganger is not treated with the Brexit vote, it will continue to evolve in a similar way to how the pre-Brexit economy would have evolved if the referendum had never happened.

It shows, in other words, the counterfactual performance of the UK economy, and the divergent output paths between the UK economy and its doppelganger capture the effect of the referendum. This 'synthetic control method' has been successfully applied to study similar one-off events, such as German reunification and the introduction of tobacco laws in the US (Abadie *et al*. 2010, 2015).

Figure 2 zooms into the post-Brexit period. We find that the economic costs of the Brexit vote are already visible. By the third quarter of 2017, the economic costs of the Brexit vote are about 1.3% of GDP. The cumulative output loss is £19.3 billion. As 66 weeks have passed between the referendum and the end of the Q3 2017 (our last GDP data point), the average output cost is almost £300 million on a per-week basis.

Using current forecasts, the cumulative costs would be expected to grow to more than £60 billion by year-end 2018, and the output gap of the UK compared to its doppelganger would be expected to increase to 2.2% of GDP. In other words, even before Brexit actually happens, the output loss triggered by the decision could be equivalent to about seven years of the UK's net contribution to the EU budget.

Understanding the costs

When we study the evolution of consumption and investment in the UK economy relative to the performance of the doppelganger economy, both investment and consumption contribute equally to the decline in output. By

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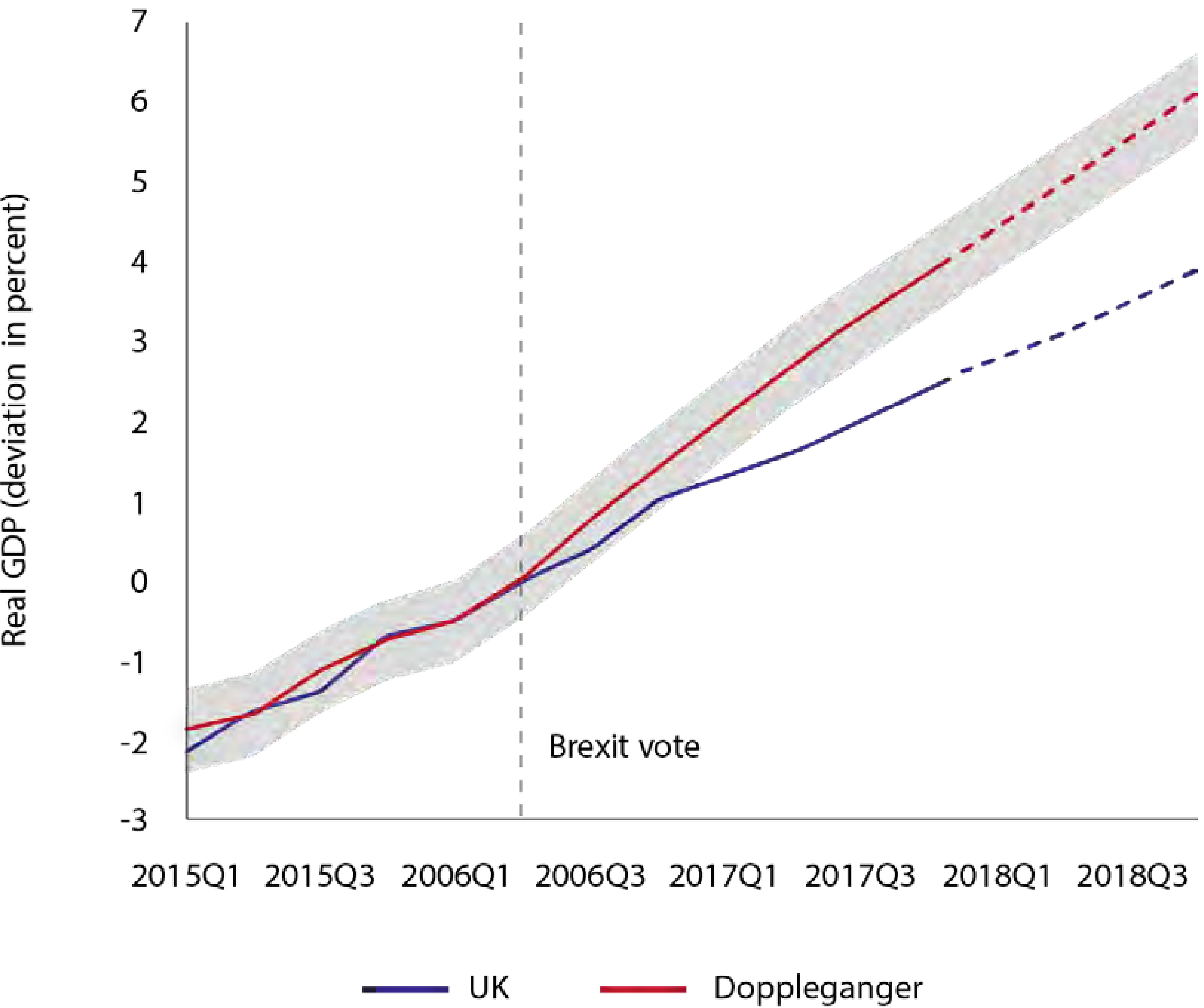
Figure 2. UK (blue line) versus doppelganger (red line), zoomed in



Note: Dashed lines are forecasts. Shaded area corresponds to one standard deviation of the pre-treatment difference between UK and doppelganger.

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Q2 2017, their contribution is a little more than half a percentage point each. This is, of course, a stronger drop in investment, given its smaller share in GDP, but it is nevertheless a sizeable decline in consumption.

What are the economic causes of the output decline? Two potential explanations stand out:

- Increased uncertainty, which may temporarily depress investment and consumption spending
- Anticipated lower future living standards, as the reduction in trade with the continent would be likely to make the UK permanently poorer

We are able to use the synthetic control method to quantify the potential importance of increased uncertainty for output decline. In a first step, we establish the increase in economic policy uncertainty due to the Brexit vote using this method, this time relative to the Economic Policy Uncertainty (EPU) index (Baker *et al*. 2016) (www.policyuncertainty.com). This index measures the volume of news articles discussing economic policy uncertainty (normalised to average 100).

In Figure 3, the blue line represents the policy index for the UK; the red line is the EPU in the doppelganger economy. Note that, in this case, the doppelganger economy is not identical to the output doppelganger discussed above because different data are availability.

The figure shows that the increase in uncertainty in the UK due to the Brexit vote has been large. It dwarfs, in particular, the increase in uncertainty during the Great Recession. As Baker *et al*. (2016b) point out, the increase in EPU has been concentrated in the UK, which we can also see in Figure 3.

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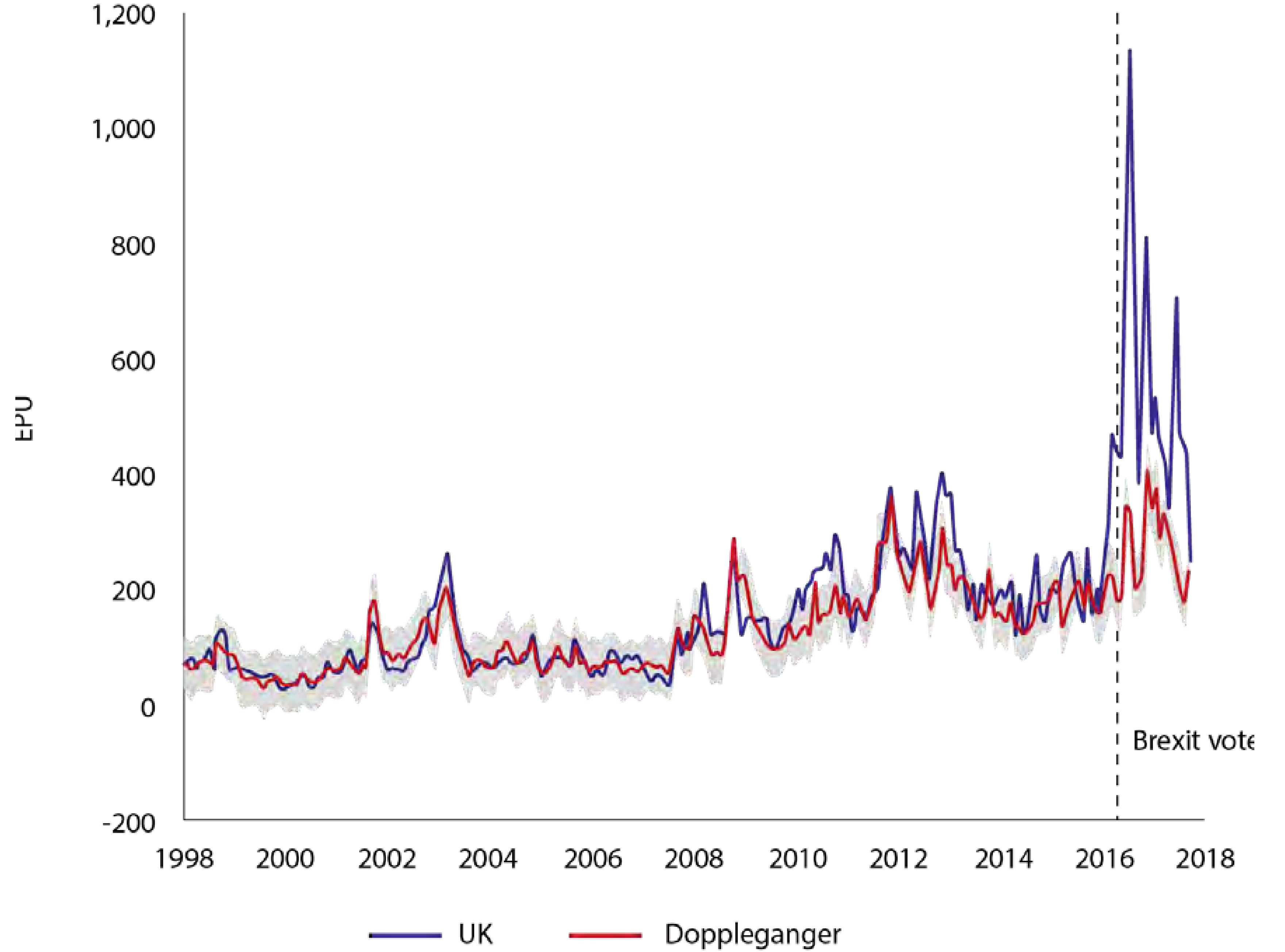
Figure 3. Economic policy uncertainty, UK (blue line) versus doppelganger (red line)



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This is remarkable, because global policy uncertainty has been high due to, among other things, the US presidential elections. Yet we find that the increase of EPU in the UK exceeds the EPU doppelganger by about 250 points in the year following the Brexit vote. Following the arguments of Baker *et al*. (2016b), the uncertainty effect of the Brexit vote on output may thus be comparable to that of the Great Recession – that is, a decline of economic activity of about one percentage point.

At this point, we cannot reject the hypothesis that the output loss so far is entirely due to increased policy uncertainty. But current forecasts suggest that the output loss is going to increase. Anticipation of the impact of the post-Brexit regime is likely to be felt already. We will be able to say more about this once we update our assessment in the spring of 2018.

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Conclusions

This is a novel approach to tracking the realised output losses that can be causally attributed to the Brexit referendum. Currently, at the end of the third quarter of 2017, the output loss has been close to £20 billion or 1.3% of GDP, reflecting heightened uncertainty evident in less investment and a reduction in consumption. Current estimates suggest that the economic costs of the Brexit vote will rise further – even before the UK actually leaves the EU.

We will update our estimates on a regular basis as new data come in. This will make it possible for economists and the wider public to track the evolving costs of the Brexit process in an unbiased, transparent, and entirely data-driven way. ■

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Editor's note: this is the second update to a column originally published on 27 November 2017 and first updated on 1 October 2018. In our original Vox column from 28 November 2017, we estimated the output costs of the Brexit vote that

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had already materialised since the June 2016 referendum. We provided a first update on 1 October 2018. We now use the latest OECD data to update and extend the estimates to the first quarter of 2019. This article was originally published on VoxEU.org

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The European Union's response to the trade crisis

The global trading system is being challenged. Uri Dadush and Guntram Wolff consider the possible outcomes and how the EU can respond

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The global trading system, a source of prosperity, is under attack on various fronts. The causes run deep and require a strategic response from the European Union and from the main trading nations. The future of the system hinges on the answer to three questions, and the scenarios associated with them:

- Can the World Trade Organization be reformed?
- Is the United States' scepticism about the system a new normal?
- Can China undertake reforms that would make its system more compatible with the WTO?

The possible outcomes for the global trading system could be good or bad, depending on how each of these issues is resolved. Under a good set of scenarios, the EU should persist on its current course with some significant adjustments. We call this Plan A, which would aim to preserve the multilateral trading system. Under a bad set of scenarios, the EU will have to contend with a possible break-up of the multilateral trading system, requiring the formulation of a Plan B.

The EU needs today to put in place its Plan B, not only to prepare for a far less favourable trading environment, but also to clarify the trade-offs implicit under Plan A. All major trading nations must recognise that the alternative to making compromises is not the status quo, but something much worse.

Introduction

The European Union's economy has never been as closely integrated with the rest of the world as it is today. The share of extra-EU trade in the EU's GDP has increased from 15 percent in the mid-1980s to 24 percent today, while the share of intra-EU trade in total EU-trade has remained at around 63 percent over the same period (European

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Commission, 2018a). The EU is now the world's largest trading bloc, even if intra-EU trade is left out. The EU's economy depends on its stable trade relationships around the world.

Table 1. International trade flows in 2017, € trillions

	Exports	Imports	Total trade
China	1.9	1.4	3.3
US	1.3	2.0	3.3
EU total	5.2	5.1	10.4
EU intra	3.4	3.3	6.6
EU extra	1.9	1.9	3.7
World	15.5	15.7	

Note: Total trade is the sum of exports and imports. Discrepancies between world exports and imports and intra-EU exports and imports are due to statistical issues. EU refers to the 28 members states of the European Union at time of writing.
Source: Bruegel based on International Trade Centre (2019) and Eurostat (2019).

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But the world trading system, on which the EU's economic activity depends, is engulfed in an unprecedented crisis. How the EU responds will be critical not only in terms of the living standards of Europeans over the next decade and beyond, but also in terms of growth prospects and stability across the world.

In this *Policy Contribution*, we examine the root causes of the current problems, develop good and bad scenarios for what could happen next, and provide recommendations for how the EU should respond. We argue that the EU needs to redouble its efforts to preserve the multilateral trading system, which we call Plan A. We also argue that the EU must devote serious consideration to a Plan B, which would respond to a dark scenario in which the World Trade Organization falters. Plan B is needed not only to prepare for the worst, but also because it helps clarify the trade-offs implicit in the policy choices under Plan A.

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The EU should re-examine its own red lines, reviewing its trade and macroeconomic policies with greater alacrity than is presently evident

The world trading system under attack

The trading system is under attack on three main fronts:

- First, the inability of the WTO to make progress in critical areas such as services, agricultural subsidies, investment, the facilitation of global value chains and digital trade calls into question the value of the organisation and the sustainability of its legal framework.

- Second, the United States is directly challenging the WTO's dispute settlement system by (at least up to the time of writing) blocking the replacement of members of the WTO Appellate Body[1], which could cease functioning in 2019[2]. The United States is also openly ignoring the spirit of WTO rules and engaging in managed trade. Countries that respond to the United States with retaliatory tariffs or by trying to make a deal are in danger of walking down the same path.

- Third, China is accused of not playing by at least the spirit of the rules. In the WTO context, China is accused of systematic theft of intellectual property, forcing investors in China to share such property (forced technology transfers) and employing widespread and opaque subsidisation, especially of and by its state-owned enterprises (SOEs; see for example European Commission, 2018b).

  Lack of market access and the lack of reciprocity are further concerns (European Union Chamber of Commerce in China, 2018). Some prominent US observers believe that China's economic system is incompatible with membership of the WTO, not just because of the preceding concerns but also because of the opaque and weak rule of law. The United States also objects to China's *Made in China 2025* programme, which it considers a plan to dominate the industries of the future.

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> The EU and Japan share many of the United States' concerns about China and are collaborating with the United States in proposing WTO rule changes. The US-China trade and geopolitical conflict undermines the stability of the multilateral trading system (see also García-Herrero, 2019).

These frictions have already done permanent damage to the system, since they have undermined the credibility of the WTO and are also encouraging countries that are so inclined to adopt protectionist measures and/or to weaken or reject proposals to strengthen the rules-based multilateral trade system[3]. For example, according to the *Global Trade Alert Report* (Evenett and Fritz, 2018), India and South Africa, which have two of the most protectionist trade regimes among the G20, adopted 926 and 230 discriminatory instruments respectively from 2008-18, and 98 and 19 respectively in 2018[4]. India raised its applied tariffs on numerous products in 2018. Unfortunately, even if future US administrations revert to policies supportive of the WTO, the doubt will persist that the

United States or another of the world's great powers will ignore or refute the system when it is opportune for their domestic politics. Less immediate, but equally important, are the concerns about China. While China formally sticks to the letter of the WTO framework, there is broad agreement in the EU and the US that state subsidisation and forced technology transfer are not satisfactorily addressed by the existing WTO agreement on subsidies and countervailing measures[5].

Causes of the attack on the trading system

The causes of the current attack on the trading system run deep and require a strategic response. The resistance to globalisation is probably in large part a result of the secular trend in skill-biased technological change which accounts for rising inequality, economic disruption and the stagnation of most incomes, a trend especially evident in advanced countries, but not only there.

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Globalisation also contributes to increased disruption and inequality directly because it creates demand for higher skills disproportionately and gives rise to many 'winner-takes-all' opportunities, especially for platform companies that can scale-up quickly and inexpensively. The disruption has been made worse by the rapid rise of China and the coming-on-stream of low-skilled workers across the developing world.

Rightly or wrongly, large current account and bilateral imbalances (Figure 1) remain a source of tension, despite the narrowing of China's overall surplus and the United States' overall deficit in recent years (the latter is widening again despite higher tariffs in 2018).

Even if economic factors are at the root, political factors – such as resurgent nationalism and fear in the United States that it is losing its primacy – also contribute to the disaffection with globalisation, and these political factors have a life of their own. Populist and nationalist leaders capitalise on the fear of globalisation to erect trade and investment barriers and to severely restrict immigration.

Brexit, though a unique phenomenon, can be read as reflecting some of these concerns. However, both export and import interests have gained in political weight with the increase in trade. With raw materials, parts and machinery accounting for 75 percent of world trade (UNCTAD, 2017), companies worry about the viability of the global value chains on which they rely.

Many people, especially young people, see their ability to buy foreign goods, invest and travel abroad as a natural right. For all these reasons, most large economies including the EU remain committed to increased openness in trade and foreign investment.

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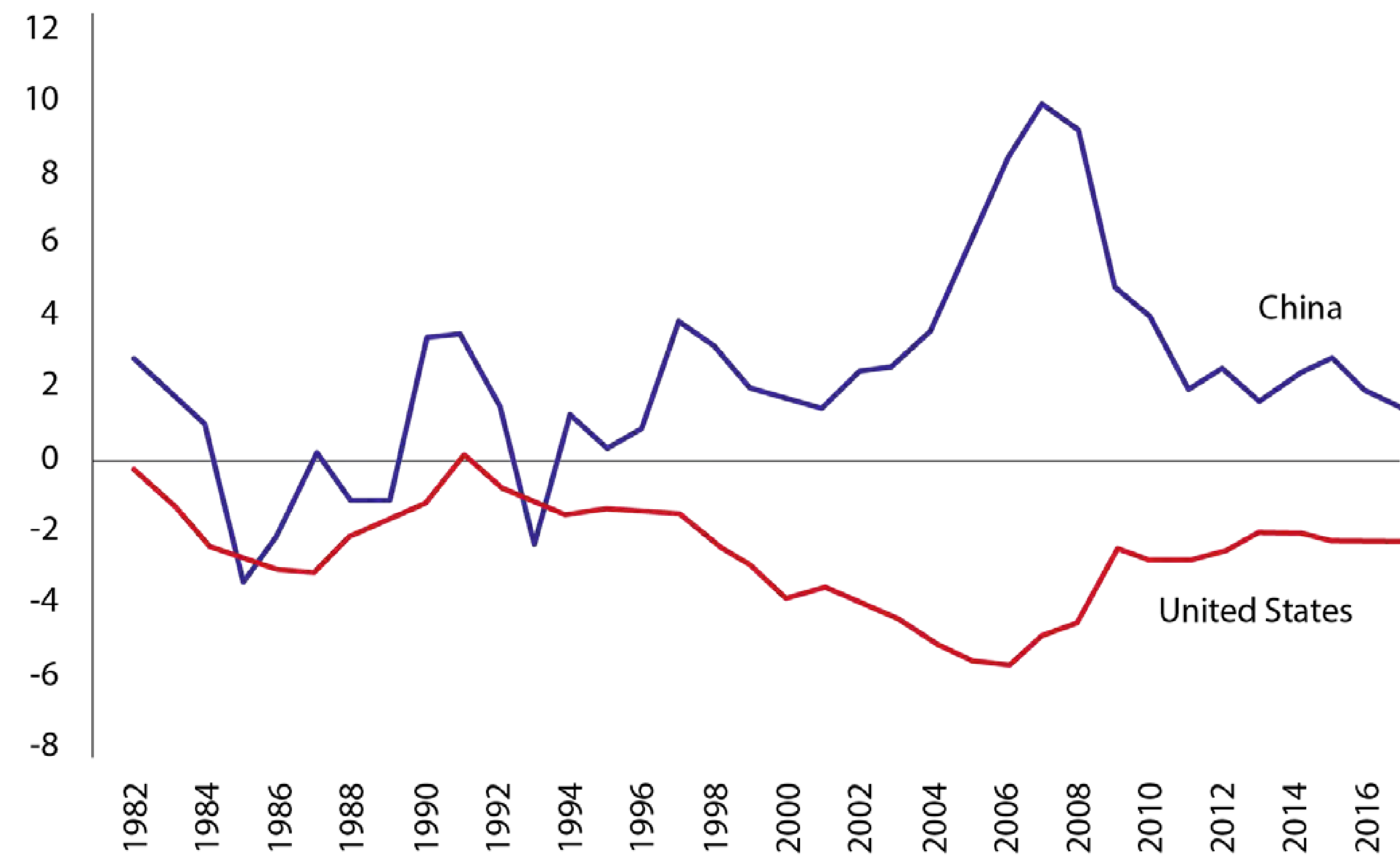
Figure 1. Current account balance as a share of domestic GDP



Source: Bruegel based on World Bank (2018).

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Economic analysis shows that protectionism is not the right answer to the problems. Rather, more attention should be paid to the plight of the most vulnerable. *Ex-ante* policies include investment in skills and infrastructure, or more generally in policies that improve competitiveness. *Ex-post* policies include measures to share the gains from global integration (Freytag *et al*, 2018).

However, the national populists have typically refused such a course, preferring to blame foreigners and put up protectionist barriers. Meanwhile, mainstream politicians in Europe and elsewhere are hampered by budget constraints, or for other reasons do not pursue policies that enhance public investment and social welfare.

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A case for preserving the world trading system

The world trading system has been remarkably successful in promoting trade and must be preserved. The system rests on three main pillars: the WTO, preferential trade agreements and domestic institutions.

The WTO is a global public good that supports open and predictable trade based on reciprocity. It now includes 164 members, accounting for 98 percent of world trade, with another 22 members at various stages in the accession process. The WTO provides the bedrock of international trade law, as it is based on the principle of non-discrimination across nations. It is a true globally-operating multilateral framework with enforcement rights.

Under WTO rules, regional agreements are governed under the WTO's General Agreement on Tariffs and Trade (GATT) Article 24 (substantially all trade and tariff reductions). These preferential trade agreements now cover about one third to one half of world trade. Thanks to the formation of the European Union and its bilateral agreements with partners, EU members can count typically on 75 percent of their trade being covered by them (Ahearn 2011).

International commercial disputes are prevalently resolved in domestic, not international, courts. Domestic institutions – the rule of law – that affect or directly govern international trade are crucial and are being continuously reformed. Although some of these reforms have moved in the direction of trade restrictions (according to the *Global Trade Alert Report*, Evenett and Fritz, 2018), over the last 10 years G20 countries have adopted 9,041 measures that discriminate in favour of domestic producers), for the most part, the trend over the last few decades has been in the direction of facilitating international trade and of complying with WTO disciplines.

The combined effect of multilateral, regional and domestic reforms on the freedom and predictability of trade has been remarkable. The Most-Favoured Nation (MFN) applied tariffs of low- and middle-income countries have declined by 70 percent since the mid-1980s (World Bank, 2017a). And about 85 percent of exports from the poorest countries now enter advanced countries duty-free (UN Committee for Development Policy, 2019).

The effectively applied tariffs (which take account of all preferential agreements) have declined even more. Despite a hiatus in the wake of the global financial crisis, world trade now represents a far larger share of world GDP than it did twenty and thirty years ago.

Crucial questions for the future of the world trading systems

The future of the trading system hinges on the answers to three related questions, and the scenarios related to them (see also Akman *et al*, 2019).

Can the WTO be reformed?

Good scenario: in a good scenario, the WTO's negotiating arm would be revitalised, on the condition that the membership can agree to move forward on specific issues and to address them through plurilateral agreements[6].

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These would involve members who represent a critical mass of trade and who would be willing to grant concessions to non-participants on an MFN basis.

It is also possible that members accounting for a critical mass of trade could agree a plurilateral agreement that is not MFN in exchange for concessions in other areas, as happened with the Agreement on Government Procurement agreement which was approved under the Uruguay Round.

It is difficult to imagine that plurilateral agreements can be reached without the involvement of the major trading economies, underscoring the importance of the United States, China, the European Union and Japan, among others, resolving their present differences.

An important part of that discussion, in our view, will be to find ways to improve the operation of the agreement on subsidies and countervailing measures, so that it effectively constrains WTO members, especially those where the rule of law and the judiciary do not operate as they do in the US and the EU. Such improvements would also go a long way towards responding to the concerns of the US about the WTO's judicial function.

Bad scenario: if the WTO negotiating arm is not revitalised, the institution will lose relevance and its judicial role will be undermined. Trade law, like any law, must evolve with the times to maintain its legitimacy, requiring a functioning rule-making system.

Most urgent at the time of writing, the WTO Appellate Body requires at least three members and could cease being operational as of November 2019 if retiring members are not replaced. This would undermine the resolution of trade conflicts within a binding legal framework.

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Do the Trump Administration's trade policies constitute a new normal in the United States or are they are an aberration?

Good scenario: many of the concerns expressed by the current administration, especially those related to China, will persist. However, the tone and the methods deployed will change in the future. We do not believe that the United States' body politic is likely to abandon the WTO completely. Most American politicians and American businesses do not favour a lawless trading regime, even if they do not exclude a power-based approach to China's perceived infractions.

Especially pressing today is the question of whether the United States will challenge the WTO dispute settlement system only on procedural grounds – in which case solutions might be found – or whether it has come to perceive it as an unacceptable infringement on its sovereignty.

Again, our baseline belief is that it is likely that a future United States administration would accept procedural changes to the WTO dispute settlement system that address its concerns; however, we are less sure that the current administration is prepared to do so.

Bad scenario: rightly or wrongly, an important ruling by the WTO dispute settlement body against the US could lead the US to leave the organisation. Other countries would then need to face the reality of a WTO without the US.

If the US reverts to a policy of isolation and protection – as it did for much of the nineteenth century and early twentieth century, a vast share of its exports and imports will no longer be covered by agreed rules. It is also possible that the US and other major trading nations will increasingly be tempted to ignore these rules if they cannot be updated in negotiations.

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Is the Chinese system compatible with the WTO and if so, is China willing and able to implement the reforms needed to address the concerns of its main trading partners?

Good scenario: China has derived great benefits from its membership of the WTO and more broadly from policies of closer integration into the global economy. Naturally, China should want the system preserved.

However, there are clear instances of Chinese free-riding in relation to China's large SOE sector, various forms of state intervention that tilt the playing field, forced technology transfer, lack of market access and the lack of protection for intellectual property. These issues would be gradually addressed.

Bad scenario: China refuses or is unable to undertake the reforms to its state capitalist system that are required to create a more level playing field in international trade. Tensions with the US and its allies escalate, and countries are forced into the unwanted choice of siding with China or with the US. As in the scenario in which the US turns inwards, all aspects of international relations would become more complicated.

What should the EU strategy be? Towards a Plan A and a Plan B

In addressing the implications of these scenarios, the EU should act on the basis that globalisation will continue even if, or as, the trading system runs into severe difficulties and slows the process for a while.

To understand the persistence of globalisation, it is useful to keep in mind the three forces behind it. First, globalisation is an entirely spontaneous economic process driven by arbitrage (buy low, sell high) in the world markets for goods, services, capital and labour. Human beings will continue to engage in this arbitrage, which they do as naturally as they breathe.

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Second, the arbitrage process in the four markets is greatly facilitated by improvements in transportation and information technologies, which reduce trade costs, including communication costs and face-to-face costs. These improvements have enabled a significant transformation in the international division of labour that began around 1990 in relation to industry, production processes and tasks.

And now, we are experiencing a drastic reduction in matching costs for business-to-consumer and consumer-to-consumer transactions, which might trigger the development of massive services outsourcing. These changes are expected to continue and even accelerate, mainly because of further advances in information technologies.

Third, it is true that historically, policies, macroeconomic depression and international conflicts have interrupted globalisation in individual countries and regions in many instances, and, sometimes even across the world.

However, history shows that a withdrawal from globalisation is not technologically or economically sustainable. Politically, countries that have withdrawn from globalisation have often also had to resort to repression. In shaping their long- term strategy, EU policymakers should assume that no country, even the largest such as the US or China, can isolate themselves from globalisation without incurring enormous costs.

EU policymakers need to redouble their efforts to ensure that the multilateral trading system is preserved – Plan A. The main aim of Plan A would be to preserve the multilateral system, which is not only a fundamental interest of the EU but is arguably even more critical for small economies around the world.

Plan A is quite close to the strategy that the EU has been pursuing in recent years but we also recommend some important adjustments that would increase the probability of success. The EU is pursuing several objectives at present, and is doing so quite appropriately:

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- The EU is striking bilateral and regional trade agreements, and engaging in domestic reforms that improve its international competitiveness and facilitate its integration into global value chains. The successful conclusion of trade agreements with Japan and Canada, and the ongoing finalisation of the agreement with Singapore, are in line with that strategy.

  These steps increase the competitive pressure on all other economies to remain within the present trading system, including within the WTO as the legal bedrock of the system. These are also steps that guard against the worst consequences of bad scenarios, should they materialise.

- EU members are pursuing measures that aid the adjustment of the most vulnerable to the proliferation of labour-saving technologies and to international trade involving low-wage economies. These policies require the pursuit of ex-ante and ex-post domestic policies that help ensure that global economic engagement does not increase inequality.

  The EU, with its comparatively strong welfare systems, is in a good position on these issues, even though it is costly and open to regulatory arbitrage. Its welfare systems and its training systems will need further adaptation – subjects that are beyond our scope here, but critical[7].

- The EU endorses plurilateral approaches to WTO negotiations. It supports WTO reforms in critical areas such as the operation of global value chains (investment rules, intellectual property protection, trade facilitation, etc), digital trade, services and agriculture.

- The EU supports procedural changes to the WTO dispute settlement process to improve the speed and

thoroughness of the system. While these changes need to take into account the concerns of the United States, the focus should be on making the system work better for all parties.

- The EU continues to make full use of the WTO dispute settlement process to deter unilateral measures. It should always be clear to the EU's partners that, in the event of their taking protectionist steps that affect the EU, such steps will backfire on them.

  More specifically, should the United States impose tariffs on automobile imports from its allies on national security grounds, the European Union should consider this action an emergency safeguard measure (not a legitimate national security measure) and retaliate as per the emergency safeguards agreement, as was done for steel and aluminium.

- The EU recognises that the United States, which has long been the lynchpin of the international trading system, is legitimately pushing for changes to some aspects of the current system, especially in relation to China. At the same time, the EU should insist that the US plays by WTO rules.

There are also major areas in which the EU can do more to increase the likelihood that the trading system will be preserved – ie. that Plan A will succeed.

- As an integral part of Plan A, the EU should re-examine its own red lines. It should review its trade and macroeconomic policies with greater alacrity than is presently evident. This would include another look at the Common Agricultural Policy with a view to reducing subsidies, tariffs and non-tariff barriers[8].

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It would also include reducing its applied tariffs in sectors such as textiles, automobiles and in various other cases where tariff peaks exist. Ideally, these measures would be implemented through MFN commitments under the WTO. Alternatively, they could be used as means to make progress on crucial bilateral negotiations, such as those with the United States and with Mercosur.

- As part of these reforms, countries with very large current account surpluses should re-examine the appropriateness of their macroeconomic, taxation and structural policies. Large-surplus countries are right to affirm that neither global nor bilateral trade imbalances can be, nor should they be, effectively corrected through trade policy measures, but only though changes to macroeconomic and structural policies. But large-surplus countries should also show greater willingness to adopt such macroeconomic and structural reforms, which are ultimately also matters of self-interest for these countries.

- The EU needs a policy that reflects China's rising economic weight without – as appears to be happening in US-China relations – falling into the trap of geopolitical competition that might have ominous consequences. For all its remarkable progress, China remains on average a relatively poor country, with per capita income at PPP 21 percent lower than that of Bulgaria, the EU's poorest member (World Bank, 2017b). China's exports of goods and services per person in 2017 were only $1,743, compared to $6,800 for the United States, $12,388 for France and $21,000 for Germany (World Bank, 2017c, 2017d).

  Still, these averages mask the fact that some parts of China are now high-income regions and several Chinese firms are now at the cutting edge of technology and sophistication. The richer regions of China are comparable in size to some nations in Western Europe, and their economies directly compete with European industries.

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China's rapid transition poses major governance challenges for its leaders. It should be clear that the EU cannot change China's state capitalist system. It should instead insist that China, which is by some measures already the world's largest economy and appears destined to become the largest trading nation by a wide margin, must rapidly adopt reforms that avoid the most blatant trade distortions – reforms that correspond to its new-found status.

China doing its fair share would include reducing its MFN applied tariffs and adoption of stringent rules on subsidisation in traded sectors, on protection of intellectual property and on the rights of foreign investors. The frameworks governing SOEs – in China and elsewhere – should minimize their distorting effect on international trade[9]. The best way to achieve these reforms would be through a multilateral effort in which China is a leading participant.

In shaping its trade relationship with China, the EU should be wary of generalisations and stereotypes and should focus instead on specific cases of infringement. For example, China's SOEs are far less productive and innovative than its private companies and, while their share of investment has risen in recent years, their share of profits and exports has declined sharply.

In some export sectors, Chinese subsidies, where they exist, might even be positive for European consumers. On the other hand, such subsidisation schemes, even if they are bad for Chinese growth and good for European consumers, can represent unfair competition or dumping policies, which are harmful for European producers in some instances.

The EU should be especially vigilant in relation to China's protection of, and state support for, young industries where first-mover advantage and economies of scale determine long-term competitive positions. Here, strong

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responses are needed as long-term advantages could be gained by China that would risk loss of significant parts of the EU's value creation for a long period of time.

When it comes to forced technology transfer, European companies make the choice to invest in China and many are adept at deciding which technologies they expose and which they protect. But the Chinese policy of using market access as a lever to force technology transfer is problematic and needs to be addressed.

In the medium term, though, the EU might not remain a net loser from the transfer of intellectual property, given that China is already the largest source of new patents and scientific articles and increasingly needs to protect its own innovations. This provides some negotiating space for the EU in its relations with China.

All that said, in shaping its China policy, the EU should bear in mind that European consumers and firms derive large benefits from the rapidly expanding trade and investment links with China. China is a far less export-driven economy than it was just a few years ago and it now imports almost as much as it exports.

Moreover, China, which in 2017 imported goods and services amounting to $2.2 trillion, roughly 30 percent less than the United States, could under plausible assumptions[10] import 30 percent more than the United States in 2030. It is therefore in the EU's interest that China reforms and remains an important market for European companies.

China's size, its long history of state involvement and of state capitalism, and the consider- able extent to which its different provinces can pursue independent policies, means that the reforms needed to eliminate these distortions are complex and will take time. The EU must strike a balance between exercising continuous pressure for change while avoiding falling into the trap of geopolitical rivalry.

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Such a constructive approach towards China encourages change through the WTO and through bilateral negotiations. The China policy needs to be complemented by the strengthening and the build-up of domestic EU instruments that ensure a level-playing field within the EU.

For example, the EU's state aid instruments need to evolve so that subsidised foreign companies entering the EU market cannot distort the market. While such measures need to be WTO-compatible, they cannot be based only on notifications to the WTO, as these are insufficiently accurate and timely.

The risk of a collapse of the multilateral trading system is real and must be addressed systematically

Plan A might fail for a variety of reasons, in particular if the various bad scenarios materialise. The EU therefore must reflect on a Plan B. This Plan B is clearly not a desired outcome, but it would be careless not to reflect on what the world would look without a functioning WTO and with trade relations based on power relations. The risks are too high for the EU to ignore such an outcome.

In the worst-case scenario, the WTO could collapse quickly – ie. over the next few years if the US refuses to replace members of the Appellate Body – or the organisation might gradually lose relevance over the next decade or two if its negotiating arm is not revitalised. In the latter case, the EU has more time to execute Plan B, but Plan B is still needed today.

If the United States refuses to replace the members of the Appellate Body, the EU, with China, Japan and others, could conceivably continue for a while to operate under present dispute settlement arrangements minus the United States, until a more permanent arrangement is found that engages the world's largest economy (or until a new US administration reverses course).

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It is also possible that the EU, China and several other parties could decide to resort to an alternative mechanism for dispute resolution within the WTO, ie. arbitration under Article 15, a procedure that is purely voluntary and that the United States might or might not decide to accept.

However, none of the alternative arrangements are likely to be permanent. Unless the negotiating arm of the WTO is revitalised – which would almost certainly become more difficult if the US remains outside – the EU cannot discount the possibility that the days of the WTO as we know it are numbered.

Not only would the dispute settlement system have lost credibility and the negotiating arm ground to a halt, but the EU would have lost its most important ally in its effort to modernise the organization, move forward on the new issues and provide a counterweight to China's rising power. The day might then come when, even for the EU's multilateralists, the benefits of WTO membership might be more than offset by the constraints it imposes and the unwieldy nature of its negotiating procedures.

In those unfortunate circumstances, the essence of Plan B would be a wider set of bilateral and regional trade agreements. However, while under Plan A the purpose of these agreements is to support and complement the WTO, under Plan B the purpose of the EU's bilateral and regional agreements would be to replace the WTO to the greatest extent possible.

That means that the EU must seek an even wider set of agreements that also include effective dispute settlement provisions. Already, individual EU members are covered by bilateral and regional agreements (the EU itself) for, on average, about 75 percent of their trade. Several new agreements are also being negotiated with Singapore, Vietnam, Mexico, Chile, Australia and New Zealand (European Council, 2019).

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Assuming the agreements hold, individual EU members would be protected to a significant degree from the worst consequences of a world without the WTO. Assuming NAFTA or some version of it survives, the US would also be protected to a degree, though less so than EU members. China is the least protected of the large traders, but is working towards more bilateral trade agreements, including through its Belt and Road Initiative.

Under Plan B, the EU's greatest challenge would be to avoid that its trade with its largest trading partners, the US and China, becomes continuously disrupted by a series of unmanageable disputes. While the EU could possibly rely on its size and influence to maintain some order in its trade with small nations, based on historical norms even in the absence of trade agreements, the same cannot be said of the US and China, with which the EU is quite evenly matched.

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Under Plan B, the EU's greatest challenge would be to avoid that its trade with the US and China becomes disrupted by a series of unmanageable disputes

In fact, a distinct possibility under Plan B would be that the global trading system breaks down into three major blocs – with far reduced trade between those blocs and increased trade within them. The global economy would certainly suffer a major blow from such a scenario.

Under Plan B, bilateral negotiations with the US and China would therefore acquire far greater urgency. At present, the most important of these is the strained negotiation with the United States, a successful conclusion of which would almost certainly require a major redrawing of the EU's red lines (as mentioned).

Further down the road, the initiation of a bilateral trade agreement with China would be just as critical. Current exploratory negotiations with China are limited to a bilateral investment treaty. As part of Plan B, the EU should immediately launch a study on what a trade agreement with China would entail. It could well turn out that such an agreement would be unviable, because the terms would be unacceptable either to the EU or to China, or to both.

The EU will also need to reach a comprehensive bilateral trade agreement with the United Kingdom, which is one of its most important trading partners, because the WTO framework would no longer be available. Here, its weight gives the EU considerable leeway in setting the terms of the agreement as the UK will be fully dependent on an agreement with the EU, by far its most important trading partner (46 percent of the UK's good exports go to the EU).

If the WTO falters, and if the EU was than unable to reach bilateral trade agreements with the United States and China, trade relations with the EU's most important partners could continue for a while to be based on inherited norms. A natural initial reference point would be the presently applied tariffs and rules of the WTO.

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It is conceivable that such disciplines could be maintained under bilateral interim deals and could be enforced under an agreed dispute settlement system, such as arbitration or such as already exists as provisions in many bilateral regional agreements.

As part of Plan B the EU should start to study how such a system could be made to work to minimise disruption. A system of this kind would be hugely inferior to the present WTO, but it could also offer some advantages of speed and flexibility. For example, remedies could be better articulated, including the possibility of financial compensation. And, the system would allow for the negotiation of partial rules or agreements in specific sectors, allowing for a process of continuous renewal.

From a global perspective, such arrangements would be clearly far inferior to the present multilateral system. However, this shortcoming could be mitigated to some degree by allowing for an open architecture under which third countries could negotiate to become part of one of the 'mega-regional' arrangements, of which there would naturally be three, EU-US, EU-China and China-US.

Clearly, the most exposed to a collapse of the present system would be the middle and lesser powers, whose bilateral agreements cover little trade. For example, countries such as Brazil, India and South Africa – countries with a history of protectionism – would be more exposed than countries such as Chile, Mexico and Morocco.

The preparation of Plan B should not be done solely by experts working in isolation. It should instead involve consultations with a wide group of stakeholders. One notable consequence would be to sharpen the understanding of what a failure of Plan A might entail. It is important that everyone understands that the counterfactual to redrawing the EU's, the US's and China's red lines might not be the status quo, but something far worse.

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Conclusions

The global trading system is currently severely challenged. The EU should pursue its current Plan A, while moving some of its red lines. Plan A consists of fostering more bilateral trade agreements and constructively but firmly engaging with China on reform of its economy while seeking to find solutions with the US.

To make success more likely, the EU should re- consider some key issues, such as more forcefully addressing its internal and external imbalances and opening up its agricultural markets more readily in the context of WTO agreements or new bilateral agreements.

But equally importantly, the EU needs to prepare for a world in which the global multilateral trading system is damaged beyond repair. Studying this scenario more carefully will also help all involved players from the US, China and the EU to grasp the costs they might face. In this way, the chance of compromise might be increased. ■

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Endnotes

1. Under the WTO's dispute settlement procedure, any member can bring a case against any other member for not living up to its commitments in a specific instance. After a period of consultations, and in the event the dispute is not resolved between the parties, the WTO membership appoint a panel of experts to decide whether the WTO member whose policy is being challenged is at fault. In case of a finding of fault, one or both parties to the dispute can appeal to the Appellate Body. The Appellate Body consists of seven permanent members, representative of the WTO membership, who serve four-

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year terms. The Appellate Body can uphold, modify or reverse the panel's legal findings. A minimum of three Appellate Body members is required in order to adjudicate on a dispute. Because new appointments and reappointments have been blocked, the Appellate Body is at time of writing down to three members, of whom one will retire in late 2019.

2. US complaints include procedural concerns such as the speed of the process and the continued involvement in cases of appellate body members even after they leave office. More fundamentally, the US objects to the ostensible 'overreach' of the appellate body to adjudicate in ways that go beyond what was negotiated, and also to opine on issues that go beyond the case in question. At a Center for Strategic and International Studies (CSIS) event on 19 September 2017, US Trade Representative Robert Lighthizer said: "the United States sees numerous examples where the dispute-settlement process over the years has really diminished what we bargained for or imposed obligations that we do not believe we agreed to. There have been a lot of cases in the dumping and countervailing-duty, the trade-rem- edies laws, where, in my opinion, the decisions are really indefensible, and even a lot of people who have much more free-trade orientation who read these question(s). And we've had tax laws that have been struck down. We've had other provisions where the WTO has taken – really, I think, took the position that they were going to strike down some- thing they thought shouldn't happen rather than looking at these – the GATT agreement as a contract. So what we've tended to see is that Americans look at the WTO or any of these trade agreements and we say, OK, this is a contract and these are my rights. Others – Europeans, but others also – tend to think they're sort of evolving kinds of governance. And there's a very different idea between these two things. And I think sorting that out is what have to do."

3. The rejection of global governance systems appears to be an important feature of this administration; see for example Bolton (2000).

4. In comparison, the United States, Germany and China, the three largest trading nations, adopted 1,661, 1,249 and 452 discriminatory measures respectively from 2008-18.

5. For details and a concrete proposal on how to address this issue, see Mavroidis and Sapir (2019).

6. The rationale for plurilaterals is that it is easier for a subset of WTO members representing a 'critical mass' of nations to reach agreement on a single issue of importance to them, than for all WTO members to agree on a very wide set of issues.

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The 'everyone has to agree on everything' approach to WTO negotiations (single undertaking/consensus approach) has become extremely unwieldy with the increase in the number and diversity of WTO members and the increase in the number of issues that the WTO deals with.
7. See for example Darvas and Wolff (2016).
8. In addition to responding to the demands of some advanced nations, agriculture reforms would encourage many developing nations to redouble their commitments to the WTO.
9. Also within China there is a debate on how to achieve a level playing field between SOEs and private companies. This discussion comes under the heading of 'competitive neutrality'. We are not in a position to assess how far the recent decisions will go. See, for example,
https://www.caixinglobal.com/2018-12-26/state-council-endorses-competitive-neutrality-101363735.html
10. The assumptions are that China's real GDP grows at 6 percent a year from 2017 to 2030 and that the United States' real GDP grows at 2 percent per year, and that Chinese and US imports grow at the same rate as their respective GDPs.

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Globalisation has led to greater competition. The explosion of advanced technologies now means that knowledge-pools and resources have connected all over the planet, levelling the playing field as never before. In this highly-interdependent modern world a country's economy and foreign policy are strongly linked, and Russia's foreign ventures have exacerbated the effects of the economic headwinds it faces.

Russia is a good example of an imbalance between economic potential and foreign-policy ambitions. Russia has the largest territory in the world and is one of the two largest holders of nuclear weapons (the US is another one). It is also one of the five permanent members of the United Nations Security Council. The majority of observers remain sceptical about Russia's long-term prospects as a great power of the twenty-first century. In their opinion, Russia's domestic situation is undermining the potential that Moscow has demonstrated in recent years.

Economically and demographically Russia is far behind. Its population accounts for approximately 2% of the world's population, and with a falling population against the rising global population. In 2017 Russia occupied ninth position in the world rankings. According to the International Monetary Fund's World Economic Outlook database of October 2018, in 2017 Russia's share in the world total GDP calculated in purchasing power parity (PPP) terms amounted to 3.2%, with declining tendency over time (in 2008, it amounted to 3.9%). Its share in global trade was even lower, at 1.8%.

Russia is searching for an identity in the rapidly-evolving interdependent world. Interdependence is expanding the opportunities to individual nations, and the question is how Russia takes advantage of these developments. This is just one of the issues raised by Russian economists, Sergey Kulik, Nikita Maslennikov and Igor Yurgens in *At a Crossroads: Russia in the Global Economy*, a thorough overview of the challenges that Russia faces in the coming decades.

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The authors explore the structural limitations and growth potential of the Russian economy, examining the labour force, the state of competition in the economy, the government's negative impact on economic competition is its excessive control and supervisory regulation, an inertia of structural constraints that has significantly affected the economy.

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At a Crossroads: Russia in the Global Economy [is] a thorough overview of the challenges that Russia faces in the coming decades

A poor business and investment climate is not the only issue explored. Russia is having difficulty in diversifying away from the dominant role of the hydrocarbon sector, the deteriorating economic and political relationships with the US and EU is of concern, and the strengthening of relations with Russia's eastern neighbours and the pivot to the East is examined in depth. Russia is aiming to have a decisive goal of being at the centre of the integrative processes in Greater Eurasia.

The credibility of these strategic ideas will depend on several areas.

Improving the investment climate, including strengthening property rights and contract enforcement, and a reduction of red tape that discourages foreign investment. Reducing the state's footprint in the economy and increasing the role of the private sector, particularly in Global Value Chains.

Fighting corruption and business extortion will be impossible without democratic oversight of public administration, law enforcement and public security agencies, and without media freedom. Further progress will be driven by the coherence and credibility of government policies. Political reforms and better guarantees of civil liberties can help increase economic freedom, innovation and business initiative.

Infrastructure investment is urgently needed to improve connectivity, reduce transportation costs and ensure better access to domestic and foreign markets. Energy infrastructure upgrades are also of vital importance. Creating a more efficient goods market, among others, by simplifying customs procedures. Deeper integration of Russia in the global economy will require far-reaching economic and technological partnerships and cooperation with leading advanced economies, including the EU and the US.

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The future economic development of Russia will require global economic growth and the stability of international commodity and financial markets, and Russia should be an active player in defending the global economic order and in strengthening it through relevant reforms. Strengthening trade relationships beyond Russia's immediate neighbours will be part of this development.

The Russian government should support innovation by allocating more resources to research and development. The rapid development and spread of technology in the midst of the fourth industrial revolution, which captures all dimensions of modern civilization, is leading to fast-paced and profound changes in the structure of the global economy and the configuration of global markets and the essence of supply and demand.

Indeed, the Krmelin views mastery of the digital area as strategic development resource. The changes taking place are so significant that the world may well be embarking on the greatest technological transition in its entire history, to a point where natural resource wealth and the cheapness of labour cease to be the fundamental determiners of growth.

Given Russia's increasing labour-supply constraints, the development of innovative business activity and high-value added manufacturing and services is the only realistic long-term strategy that would enable an upper-middle-income economy such as Russia to diversify away from the hydrocarbon monoculture.

The authors summon up Russia's dilemma:

> *… the Russian strategic interest is in the expansion of both international competition and cooperation along the whole perimeter of pax economica, driven by Moscow's greatest possible contribution to weakening the current geopolitical tensions. The speed and comprehensiveness of the solutions will depend directly on sharing the*

> *road with Russia's trading partners. This will, to a large extent, be conditional on an adequate understanding of the logic of Russia's past and present interaction with the global economy, which this book has endeavoured to illuminate.*

Overall this is an excellent book that is destined to shape the debate about Russia's future. Russia's choice at this juncture will determine the future of its economic development for many years to come. ■

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Implications of the escalating China-US trade dispute

Uri Dadush considers the impacts on the Chinese and US economies, as well as the strategic problems this dispute poses for Europe

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If allowed to escalate, the trade dispute between China and the United States will significantly increase the likelihood of a global protectionist surge and a collapse in the rules-based international trading system. Here the author assesses the specific impacts on the Chinese and US economies, as well as the strategic problems this dispute poses for Europe.

President Trump's decision to increase tariffs from 10% to 25% on $200 billion-worth of imports from China, and his threat to do the same to the other $300 billion-worth of US imports from China which have not been penalised so far, marks a new and dangerous phase in the deterioration of international trade relations since his election in 2016.

China has just announced retaliation on $60 billion-worth of imports from the United States, a relatively mild response. The new tariffs raise three questions of general interest and more specifically for the EU: what will be the effect on the American, Chinese and, ultimately, the European economy? What are the implications for the multilateral trading system? How should Europe adjust its geopolitical stance vis-à-vis its two largest trading partners?

Direct economic effect

From the outset it should be noted that the negotiations between China and the United States could still lead to a win-win outcome. Reformers in China know that their state-owned enterprises are inefficient, subsidies are costly, capital is mis-allocated, and the nation's surging endowment of intellectual property must be protected.

All these reforms are in the direction many American businesses and the moderates in the United States administration want to see. Both countries need and want a deal and the situation is fluid. Negotiations are expected to resume, with Presidents Trump and Xi Jin Ping scheduled to meet in Tokyo at the end of June.

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China has retaliated but has also been quite restrained in its response to date, and the US measures could still be reversed. The situation is also fluid because the US has so far applied tariffs almost exclusively on intermediate products (capital goods and parts) imported from China.

This measure penalises US producers vis-à-vis competitors across the world, discourages investment in the United States in some sectors, and so represents an unstable equilibrium. If tariffs remain, they may create strong incentives to apply tariffs on China's consumer product exports as well.

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The present trade dispute between China and the United States brings Europe's dilemma into sharp relief. How to navigate relations between its two indispensable partners?

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The direct aggregate effect of the tariffs on the welfare of the US and Chinese, while negative, is likely to be very small. It is possible to model the effect of tariffs in extraordinary detail but ultimately their direct aggregate effect on welfare is small. This is essentially because they represent a transfer from consumers, importers and partner exporters to the government imposing the tariffs, a point that President Trump has seized on and voiced repeatedly, even though he mistakenly believes that only the Chinese will pay for the tariff.

One can assume that sooner or later, the American consumer will bear much of the cost of the tariff though higher prices, but also that tariff revenue will return to American residents in some form. The negative aggregate welfare effect of tariffs thus arises because, at the margin, they displace more efficient producers by less efficient ones who may be domestic or who may belong to third parties[1].

They also arise because, at the margin, tariffs artificially reduce the consumption or use of imports in favour of domestic goods or goods imported from third parties. These two effects ('welfare triangles', in the jargon) turn out to be very small – and especially so in the case of giant economies such as China and the United States, whose bilateral trade represents a small part of GDP, and who have abundant access to alternative third-party suppliers. This is why various estimates of the size of *aggregate direct* effects of tariffs tend to be in the region of 0.1 % of GDP or less.

The distributional effect of tariffs is likely to be very uneven and severely negative on some people and sectors. The distributional effects of tariffs can be many times larger than the net economy-wide effects. In the case of the United States, for example, while the Treasury will see increased revenue, and some producers who compete with imports will gain, small companies that depend on imported parts from China are likely to be very badly affected by tariffs.

Their capacity to negotiate lower prices with the Chinese or to pass on higher prices to consumers is limited, and they cannot easily and quickly find new suppliers or reorient their sales onto third markets when they face Chinese retaliation. Many such companies will be forced out of business.

Larger importers will also be adversely affected, but have more market power and resources to shift onto new suppliers and markets. US farmers who depend on Chinese markets have already been badly hurt by Chinese retaliation to the first round of tariffs and will suffer even more as the dispute escalates.

All this means that the political salience of tariffs far outstrips their aggregate economic impact. Indeed, Trump's belief that tariffs will help his large constituency in the rust-belt – whether correct or not – reinforces his protectionist bent.

Investment is deterred by tariff uncertainty. The biggest adverse effects of tariffs on aggregate economic activity is through investment. Lower investment is the natural result of the tariffs' big distributional effects, as discussed above, and the uncertainty they engender. This effect on 'animal spirits' is difficult to model and impossible to quantify with precision, though many try.

The extraordinary sensitivity of stock markets to trade news and their volatility is just one manifestation of this effect. The widening growth gap between the global manufacturing and services sectors evident in recent quarters is another, as is the slowdown in investment in many countries.

Although it is happening in an entirely different context, the slowdown of the British economy – weighed down by the lack of clarity about the trade regime after Brexit – is another example of the effect that (potential) tariffs can have on economic growth.

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It is important to note that in trade as in military matters skirmishes can turn into battles and battles can turn into war. The skittishness of investors reflects the fear of extreme outcomes that could entirely disrupt global supply chains, as well as that of their progressive deterioration.

The uncertainty over tariffs is most damaging when it calls into question not only domestic conditions but the viability of the global trading and investment system, to which I now turn.

Systemic effect

If allowed to escalate, the trade dispute between China and the United States will significantly increase the likelihood of a global protectionist surge and a collapse in the rules-based international trading system, for which the beleaguered World Trade Organization provides the bedrock.

Even prior to the events of recent days, great damage has been done to the WTO by the United States' refusal to replace members of the Appellate body, by its decision to impose tariffs on aluminium and steel for its allies (invoking national security), and by its use of Section 301 to proclaim a first round of tariffs against China – in clear violation of WTO rules.

I do not know the content of the various negotiating drafts between China and the United States, but what is certain is that the 'deal' is one-sided, in that China has to make big changes while the United States makes a few if any beyond – sooner or later – removing the tariffs it has imposed.

What is also clear is that negotiations are being conducted outside the WTO framework for settling disputes and that widely reported measures included in the draft agreement – such as Chinese promises to buy more soybeans, natural gas, and aircraft from the United States – would violate the non-discrimination principle of the organisation.

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The United States is also widely reported to insist on maintaining tariffs against China as a measure to ensure compliance with the agreement, which would also violate the WTO rules. By agreeing to negotiate in this way, China and the United States undermine the organisation that many expect them to lead.

Anyone who has worked on trade policy knows that, while many recognise that trade benefits consumers and enhances productivity, protectionist and free-trade interests are typically quite evenly balanced in countries across the world. The examples of the United States – stakeholder of reference in the rules-based system – raising tariffs, and of China – the world's largest trader after the European Union – doing the same in retaliation, all outside the WTO system, inevitably tips the balance in favour of protectionists everywhere.

Damaging as a global slowdown induced by tariff disputes may be, the greater risk confronting Europe – whose economy depends on trade – is a return to a power-based instead of rules-based trading system – as Guntram Wolff and I have argued recently[2].

Geopolitics

As many believe, the trade dispute between China and the United States is only partly about trade, and perhaps it is not even mainly about trade. Like the regional proxy-wars between the Soviet Union and the United States during the cold war, the underlying motive is not so much about a specific measure but about great-power competition.

It follows, as others have predicted, that even if this trade episode is resolved amicably, confrontations will recur – and some of these are likely to unfold outside the trade arena, where they may turn out to be even more dangerous.

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Europe has big economic interests in a stable and growing United States and in a stable and growing China. China is clearly headed towards being Europe's largest trading partner in the not-too-distant future. The Chinese economy is already about as large as the US economy in purchasing-power-adjusted terms, China's population is more than four times larger than that of the US and its GDP per capita is growing at least three times faster.

It is unthinkable that Europe will want its historical alliance with the United States to lapse, but it is also unthinkable that Europe will forego its trade and investment opportunities in China. China and Europe have differences, and some of these differences mirror the trade concerns expressed by the United States, but Europe is not in geopolitical or military competition with China.

The present trade dispute between China and the United States brings Europe's dilemma into sharp relief. How to navigate relations between its two indispensable partners? How does Europe maintain its freedom of manoeuvre on trade and on many other issues, and how does it pursue its economic and political objectives without alienating one or the other of the sparring giants? It is safe to assume that these questions will preoccupy European policymakers far into the future. ■

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Endnotes

1. There are also negative effects of tariffs on productivity as competition is reduced, innovation pressures moderate, and there are less opportunities for economies of scale. However, these effects take a long time to materialize and are likely to be very small since the volume of trade affected is small relative to the size of the Chinese and American economies.

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2. U Dadush and G Wolff "Life after the multilateral trading system"

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Xi and Trump miss a chance to expand markets

The conclusion of the China-US trade negotiations has been postponed. Jeffrey Frankel argues that the US-Japan agreement three decades ago serves as a template

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The supposed deadline for a conclusion to China–US trade negotiations has been postponed until late April. This column argues that the structural reform aspect of the negotiations is reminiscent of US negotiations with Japan three decades ago, and that the Structural Impediments Initiative between the two countries could, in theory, serve as a useful model for the current US–China negotiations. The question is whether Presidents Trump and Xi have as firm a grasp on economic principles as their predecessors.

Donald Trump has postponed until late April the supposed deadline for a conclusion to China–US trade negotiations. A good outcome for both sides would have China agree to better protect private property rights and to reduce the role of the state in its economy, the US agree to strengthen national saving and public investment, and both sides agree to reverse their recent tariff increases and the resulting shrinkage of international markets. Unfortunately, this deal is not likely to happen.

What does the US want?

Trump focuses intently on the bilateral US merchandise trade deficit with China. Beijing could probably deliver on the verifiable – but worthless – step of reducing the bilateral balance by committing to buy more soybeans, natural gas and other commodities from the US. But this would have little or no effect on the overall trade balance, as the US would export less soybeans and natural gas to other trading partners.

Congressional Democrats would point out that the gain was illusory. They would be right, which is just another illustration of the irrelevance of bilateral trade balances (Melitz and Klein 2017).

Overall trade balances are more meaningful. But as economists always explain, the overall trade balance is determined not by trade policy, but by national saving and investment. That the deficits widened in 2018[1] was the predictable result of Trump's $1.5 trillion tax cut (Frankel 2018a).

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The US and other trading partners have more legitimate complaints against China when it comes to technical knowledge transfer and intellectual property rights. But the effective way to pursue such negotiations would have been in cooperation with allies, via such multilateral institutions as the WTO (Frieden and Trachtman 2018) and the Trans-Pacific Partnership (Frankel 2015a). Trump has gone far out of his way to pursue the opposite of this cooperative multilateral approach, making progress difficult.

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The Structural Impediments Initiative was a success not because it eliminated the bilateral Japan-US trade balance, but because it made some small steps toward mutually beneficial reforms at the same time that it avoided the political alternative of destructive tariffs and quotas

Asking China to reduce the role of the state

Deducing a coherent rationale for US trade policy is a challenge. But one might discern in the demands that have been placed on China the theme of pushing it to restructure its economy in the direction of a greater role for the market, shrinking the size of the state sector, and lessening pervasive government control. Certainly, this has been the tenor of US demands in previous administrations.

The interesting thing is that pro-market reforms, generally speaking, would tend to be in the interest of the Chinese economy. This is recognised by many economists, not just American or foreign, but Chinese as well. For that matter the plan to shift emphasis from the state sector to the private sector was enshrined in the Third Plenum of the 28th Party Congress in 2014.

The programme called for a reduction in the role of inefficient state-owned enterprises to allow more dynamic private firms more room to grow, among other things. The rhetoric has not been disavowed. But little or no progress has been made on these reforms.

To the contrary, it has become clear from his actions that President Xi Jin Ping is not interested in reducing the size or role of the state, even in the gradual measured way of his predecessors. Inefficient state-owned firms continue to benefit from easier access to bank loans than the more dynamic private firms. Indeed, as Nicholas Lardy of the Petersen Institute for International Economics points out (Lardy 2019), Xi has rolled back market reforms[2].

The Chinese president is said to be closer in spirit to Mao than to the intervening leaders. It is not clear whether Xi lacks appreciation for the potential economic advantages of freer markets or whether he has decided he is willing to sacrifice some economic performance for the imperative of maintaining political control over Chinese society (Economy 2018).

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To say that reforms would be in China's interest is not to say that they would not also benefit the US and other trading partners. The game is not in reality zero-sum (Frankel 2015b).

A good example is government subsidies for heavy industry such as steel mills, particularly in the form of cheap loans from state-directed banks. This was one component of China's fiscal expansion in response to the global recession of ten years ago. The counter-cyclical timing of the 'Keynesian' stimulus was excellent; the resource allocation of the spending was poor.

The programme left China with tremendous excess capacity in steel – bad for the efficiency of the economy, bad for foreign competitors (and bad for the environment, to boot). Subsidies to steel and other heavy industry are 'exhibit A' in the argument for shrinking the footprint of the government, including local government.

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Does the US want a market-determined exchange rate?

A different kind of example of free-market rhetoric concerns the history of US demands over the yuan. Trump, as candidate and as president, has attacked China for manipulating its exchange rate (Frankel 2017a, 2018b).

The charge – which has been made by American politicians ever since 2003 (Frankel and Wei 2007) – is that the Chinese authorities intervene in the foreign exchange market to keep their currency unfairly undervalued (by buying dollars and selling yuan, to dampen its appreciation). The US objective was to help its producers compete against low Chinese prices, but the campaign was justified in the name of allowing the foreign exchange market to work freely.

For ten years, this position made sense. But in 2014, market forces changed direction. Since that year, China's central bank has had to spend almost $1 trillion (easily a world record) in trying to resist the depreciation of its

currency (Frankel 2015c). If it had acceded to the demands of American politicians to let the market work, the yuan would have depreciated even more than it has.

Apparently keeping the value of the Chinese currency high is still a key US demand in the current negotiations. The Chinese authorities, for their part, have no desire to let the yuan fall freely. But after five years, it has become apparent to all that the goal of stabilising the exchange rate is inconsistent with the rhetoric of reducing government influence and letting the market work.

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The precedent of the Japan-US Structural Impediments Initiative

As in so many other respects, the structural reform aspect of US negotiations with China is reminiscent of negotiations three decades ago with Japan. In June 1990, under the Structural Impediments Initiative (Matsushita 1991), the Japanese government agreed to a detailed set of structural policy reforms, requested by the US government under the administration of President George HW Bush.

The background behind the initiative was Congressional anger at a large bilateral trade deficit with Japan. The objective of the Structural Impediments Initiative was to respond to the issue in ways that would be more fundamental and effective than tariffs. Japan, for example, agreed to tighten enforcement of competition laws, to loosen ties among its keiretsu (industrial groupings), to make it easier for large-scale retail chains to open stores, and to reduce the bias toward using land for rice farming.

At the same time, the US agreed to reforms on its side, designed for example to increase its rates of household and public saving (Frankel 2018c), reduce the tax bias toward debt-financed homeownership (Frankel 2017b), and strengthen investment in education and training. Such reforms would work to reduce the countries' trade imbalances (particularly by narrowing the gap in the two countries' national saving rates).

But it was noteworthy that the US asked Tokyo to do things that would improve the efficiency of the Japanese economy while Japan asked Washington to do things that would improve the efficiency of the US economy (Frankel 1990).

As it happened, the 'Japan threat' began to melt away soon after the Structural Impediments Initiative, but not because of US or Japanese trade policy. A three-year Japanese financial bubble burst in 1990, and the economy has never quite recovered since. The rapid ageing of the Japanese population plays a large role.

For one thing, ageing reduced the national saving rate – as economists had predicted (Horioka 1992). In turn, Japan's trade balance fell as a share of GDP (Frankel 2012a). (Similarly, China's trade surplus peaked in 2008, and subsequently fell (Frankel 2012b).)

The Structural Impediments Initiative was a success not because it eliminated the bilateral Japan-US trade balance, but because it made some small steps toward mutually beneficial reforms at the same time that it avoided the political alternative of destructive tariffs and quotas (Branstetter 2017).

In theory, it could serve as a useful model for China–US negotiations, if they were in similarly competent hands. But the two countries' leaders may not have as firm a grasp on economic principles as their predecessors. ■

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2. *https://www.ft.com/content/3e37af94-17f8-11e9-b191-175523b59d1d*

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The global macroeconomics of a trade war

Increasing protectionism will slow down world trade and may dampen global economic growth. Wilko Bolt, Kostas Mavromatis and Sweder Van Wijnbergen consider the findings from the EAGLE model

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This column examines the global macroeconomic consequences of a major trade conflict between the US and China, and shows that the two countries would be the biggest losers from a 10% 'tit-for-tat' trade war between them. As long as it does not get involved in the conflict, the euro area may temporally gain from trade diversion, as competitiveness improves and imports from regions whose exports are blocked elsewhere become cheaper.

After a decades-long gradual move towards free trade, US President Donald Trump has recently shaken the foundations of the global trading system by imposing steep tariffs on imports from China and other countries[1]. It is not yet clear how the US-China trade conflict will end, but there is widespread concern that an ongoing trade war between the two largest world economies may derail the recovery from the Global Crisis (Berthou *et al*. 2019).

To gauge the macroeconomic effects of a trade war between the US and China, we use the De Nederlandsche Bank (DNB) variant of the ECB's multi-region, general equilibrium EAGLE (Euro Area and Global Economy) model.

This model encompasses the world economy and models bilateral trade flows and their relative prices for each region explicitly. Imposing trade tariffs in the model harms world output, while causing trade diversion towards the euro area. Output in the US and China contracts as their bilateral exports drop. Instead, the euro area may benefit from an appreciated effective exchange rate that boosts private consumption.

The EAGLE model with tariffs

EAGLE is an open economy DSGE model that accounts for international macroeconomic interdependence – within the euro area, but also globally (Gomes *et al*. 2012). It contains four regions: the home country (in this case, the Netherlands), the rest of the euro area, the US, and the rest of the world (RoW). We take the RoW as representing China (and other non-EU targets of current US trade policy).

We extend the model to allow for import tariffs. In the model, setting a tariff on imports translates in to imposing a distortionary tax on the marginal cost of exporters. Specifically, when the US imposes tariffs on imported intermediate goods from China, it essentially imposes a tax on Chinese exporters to the US. The US fiscal authorities then collect those revenues and rebate them lump-sum to US households. A similar mechanism holds when China imposes tariffs on imported intermediate goods from the US.

Given the downward-sloping demand curve and the upward-sloping supply curve that monopolistically competitive firms face, the tax burden is shared between the (domestic) consumer and the (foreign) producer. A higher elasticity of substitution between product varieties implies less market power – then exporters bear most of the tax burden and vice versa.

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While two dogs (the US and China) are fighting for a bone, a third (the euro area) runs away with it

The model outcomes display Lerner-symmetry – import tariffs are equivalent to export taxes[2]. That is, higher tariffs lead to lower imports but, equally, to lower exports. The trade balance response depends on what happens to intertemporal variables (eg. real interest rates, and gradual changes in the real exchange rate, possibly phasing out tariffs).

Macro impact of a US-China trade war

Consider a tit-for-tat US-China trade conflict where the US imposes a permanent 10% tariff on all Chinese imports. China retaliates after one quarter with a similar tariff on all US exports to China. Figure 1 shows the global impact. The US trade actions have a significantly negative impact on world output that eventually declines further once the Chinese retaliate. In the graph, one period corresponds to a quarter.

After five years, aggregate world output is over 0.5% below the baseline ('steady state'). When China retaliates, world output falls initially less when only the US imposes tariffs. The Chinese retaliation substantially offsets the real appreciation of the dollar and there is a much stronger European increase in demand as China switches its exports from the US to the euro area. However, as relative prices adjust, the negative effects on US and Chinese investment eventually lead to lower world output after all[3].

In Figures 2, 3, and 4, we display the responses of key macro variables in each region. Consider first US tariffs on Chinese exporters only (solid blue line). A striking result is the decline in GDP in the US itself once it imposes the tariffs on imports from China. Employment declines as tariffs also lead to lower exports from, and lower investment in, the US.

Although tariffs imply a subsidy to domestic producers, they also imply a tax on all users of imported goods, an effect that worsens the impact on short-run output. Consumption in both variants declines and investment slows

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Figure 1. Effect on world output from US-China import tariffs

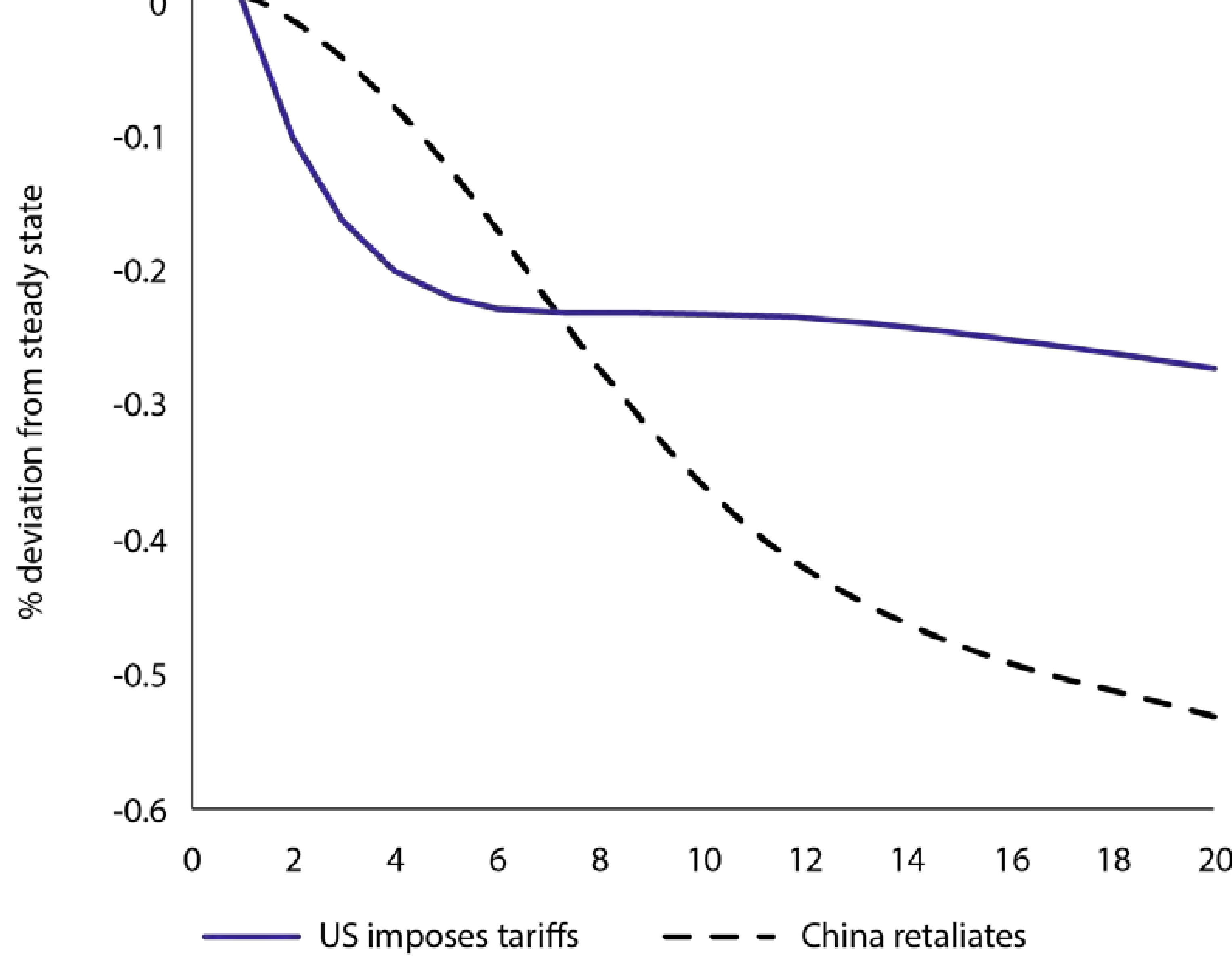

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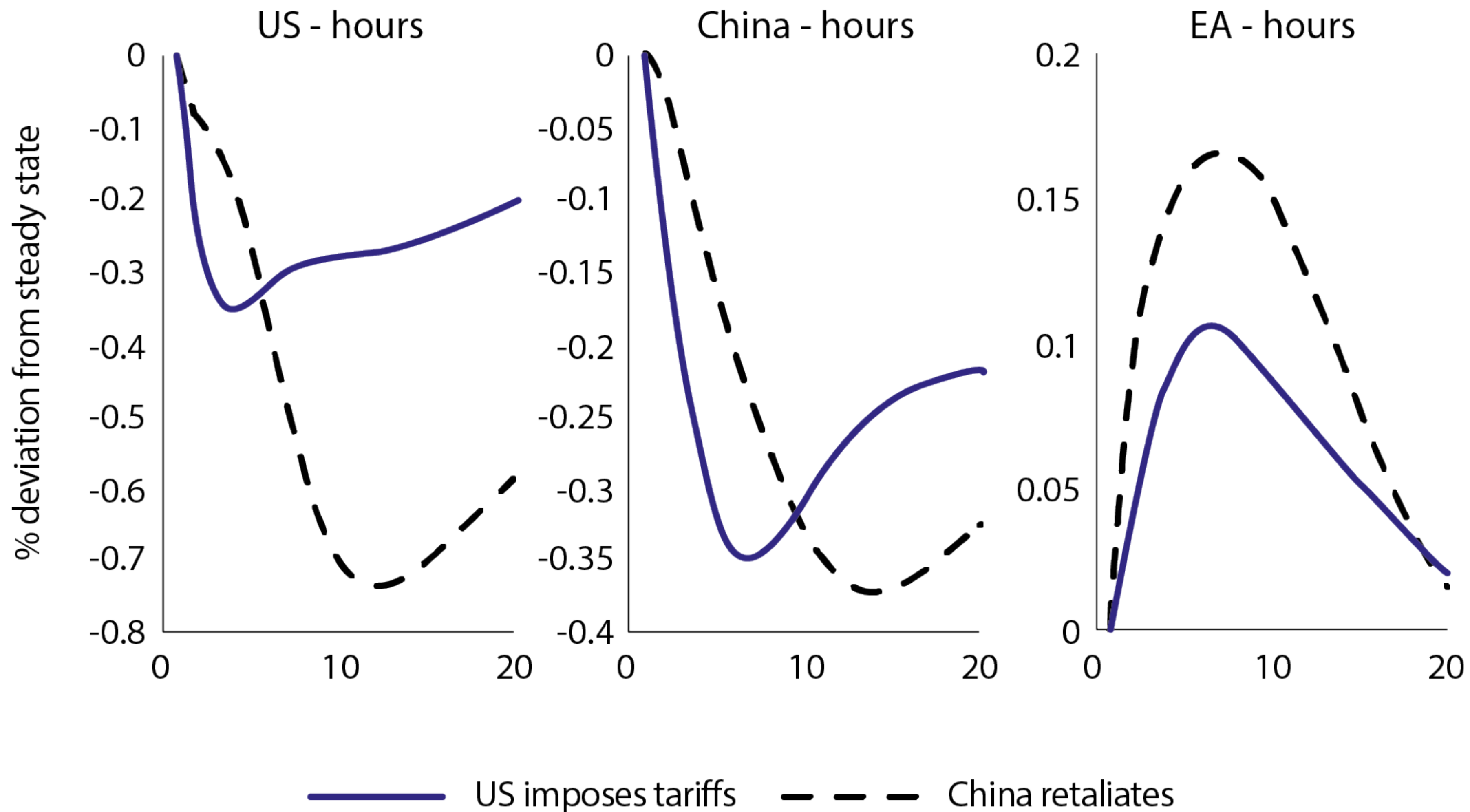
Figure 2. Effects on US (quarters on horizontal axis)



Note: The blue solid lines depict the responses when the US imposes tariffs on Chinese exporters. The black dashed lines add in China's retaliation. A higher real effective exchange rate (REER) implies a depreciation.

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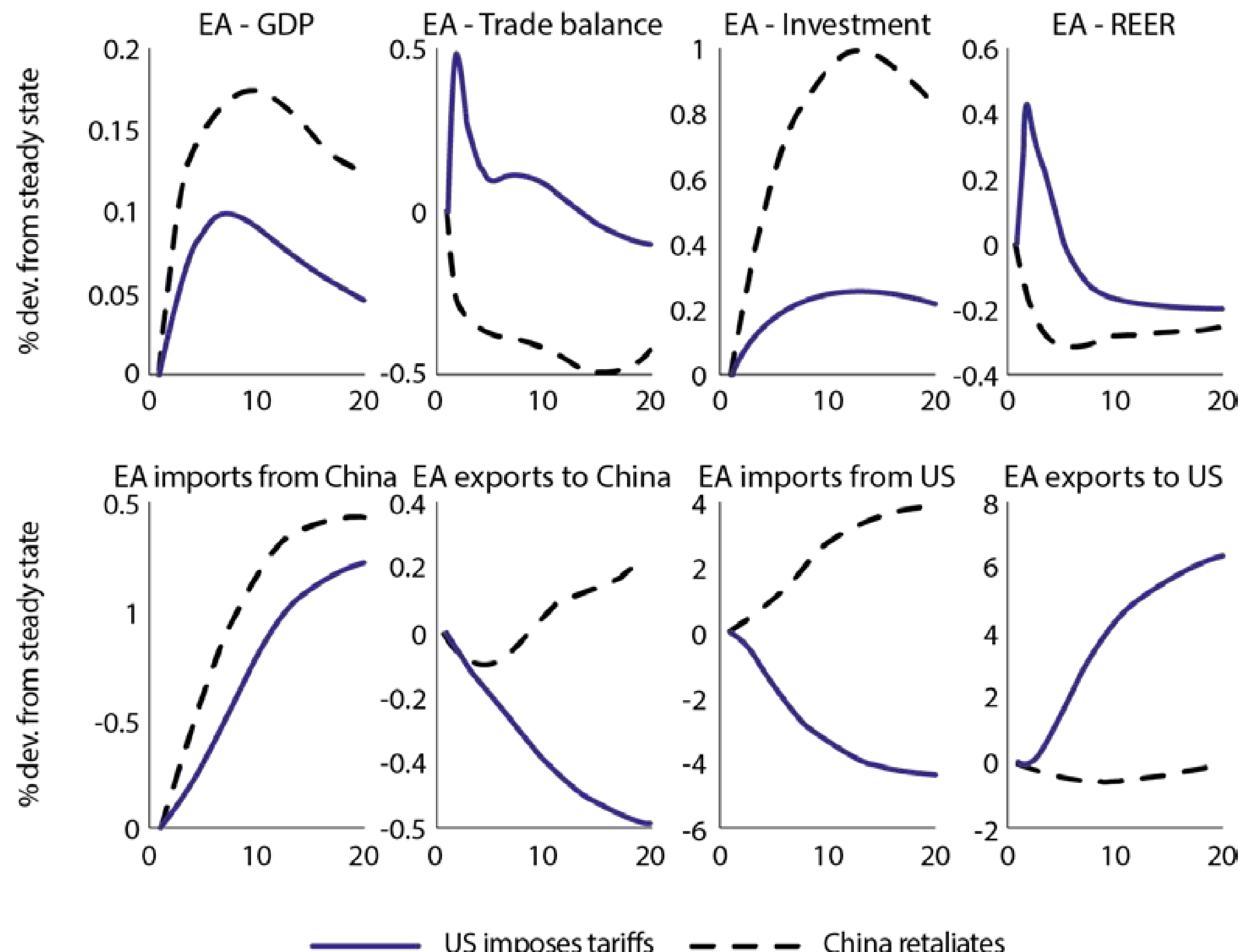
Figure 3. Effects on China (quarters on horizontal axis)



Note: The blue solid lines depict the responses when only the US imposes tariffs on Chinese exporters. The black dashed lines add in China's retaliation. A higher real effective exchange rate (REER) implies depreciation.

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Figure 4. Regional employment responses (quarters on horizontal axis)

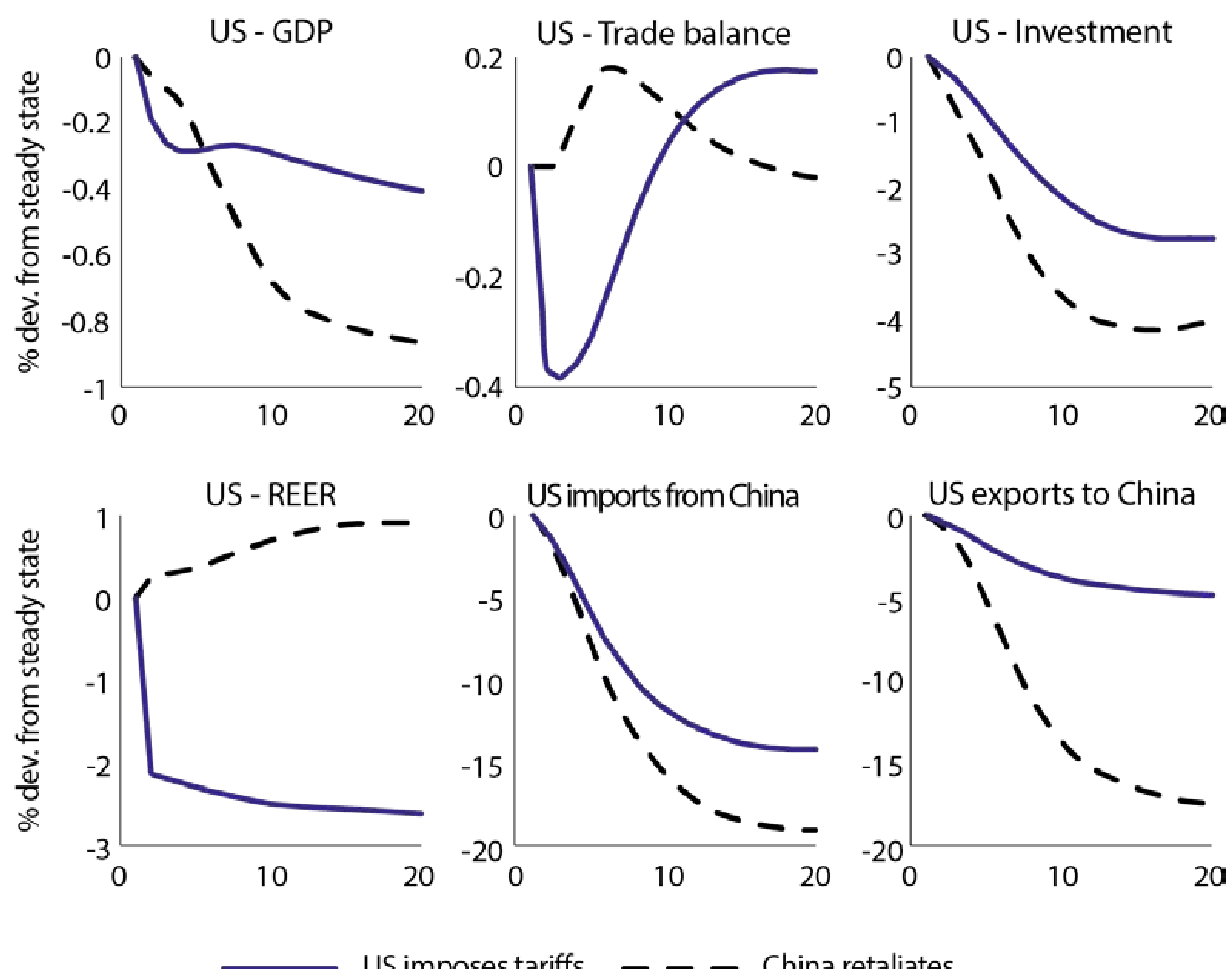

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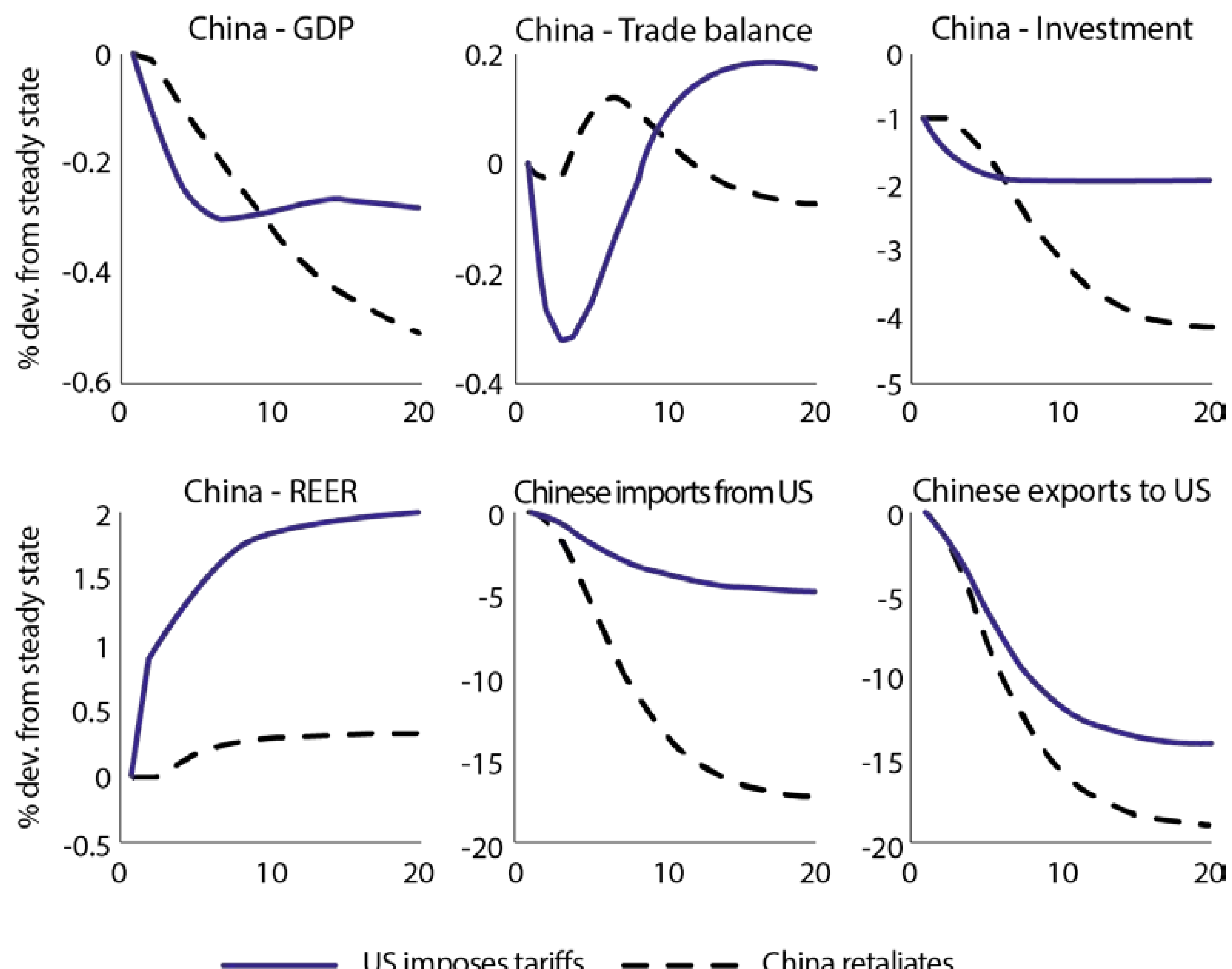
Figure 5. Effects on euro area (quarters on horizontal axis)



Note: The blue solid lines show the responses when only the US imposes tariffs on Chinese exporters. The black dashed lines add in China's retaliation. An increase in the real effective exchange rate (REER) and the real exchange rate (RER) corresponds to a depreciation.

down, amplifying the decline in output. This is the Lerner symmetry theorem at work – import tariffs are equivalent to export taxes.

A striking result is that the US tariffs initially lead to a deterioration in the US trade balance as lower output more than offsets the fall in investment and consumption. Chinese retaliation (black dashed lines) adds significant injury to the US. US output contracts more, as do the other macro-indicators. China similarly sees a significant slowdown in GDP and investment.

The euro area has some short-run benefits though. It benefits from the trade flow effects of the trade war. Chinese exports are now diverted to the euro area at lower prices. Equally, prices of Chinese goods in the US (post-tariff) go up, which improves the euro area's export competitiveness vis-à-vis Chinese exporters in the US.

The employment across regions shows striking differences (figure 4 below) – China and the US hurt each other significantly, but European employment picks up as exports become more competitive in the US and Chinese imports become cheaper.

Figure 5 gives more details about the impact on Europe. The US tariffs lead to higher European exports to the US as European competitiveness against Chinese exporters improves. And imports from China increase as Chinese producers divert goods to the euro area.

Conclusion

The analysis, stylised as it is, yields some stark conclusions. Whether tariff wars 'are easy to win' we do not know, but they do inflict real harm on the US itself. Even the 10% tit-for-tat tariff war leads to almost a full percentage point lower output for several years running and a decline in consumption and investment.

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China experiences similar effects. In line with economic theory, the import tariff acts like an export tax – US exports decline significantly as their competitiveness is undermined by the appreciating dollar.

While two dogs (the US and China) are fighting for a bone, a third (the euro area) runs away with it. That is, the euro area may benefit from the US-China trade conflict in the short-run. The analysis suggests that as long as it does not get involved in the conflict, the euro area profits from cheaper imports from China as they get diverted from the US, and it gains improved competitiveness in the US in response to tariffs against the Chinese and the appreciating dollar.

This differential impact also shows in the employment responses – down in the US and China but up in the euro area. But overall the global impact of the US trade actions is negative for world output and even more so when the Chinese retaliate. ■

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Endnotes

1. In a joint report with IMF and the WB, the WTO (2017) argues that trade liberalisation has brought higher productivity, greater competition, lower prices, and improved living standards.

2. Erceg et al. (2018) and Linde and Pescatori (2017) – using a two country DSGE model – also find evidence for Lerner symmetry after tariffs are imposed.

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3. Ossa (2014) disagrees and argues there will be substantial global and individual country losses in a full-scale tariff war with retaliation.

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Corporate Traveller is pleased to announce that RA Shaw Architecture has been awarded Outstanding Contribution to Luxury Property 2019.

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Next-generation technologies and the future of trade

Susan Lund and Jacques Bughin consider some of the possible effects and estimate the magnitude of potential changes of the future technological transformation

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The history of trade reflects the ongoing march of technological innovation. This column argues that despite today's increased trade tensions, rising nationalism, and slowdown in global goods trade, globalisation is not in retreat. Instead, it is entering a new chapter that is being driven by flows of information and data, as well as technological changes that are reshaping industry value chains.

Many forces shape trade flows, including trade policies, changes in the nature and location of consumer demand, and differentials in the costs of labour and other inputs across geographies. Another important, but under-appreciated, driver of trade flows is technology.

The history of trade reflects the ongoing march of new technological innovations. After the Second Industrial Revolution, for example, the introduction of steamships and railroads changed the economics of trading across national borders. Likewise, the digital revolution of the 1990s and early 2000s enabled companies to interact with far-flung suppliers and customers (Baldwin 2016).

Global value chains existed before the internet, but the internet further enabled fragmentation and offshoring of production by vastly improving coordination and communication costs. As China and other developing countries began participating in these production networks of specialised suppliers and assembly plants, trade flows soared and stretched around the world.

Today the next generation of technologies will reshape trade flows and global value chains again. But unlike the previous ICT revolution, these innovations will have a more varied and complex effect on trade in the years ahead. Some advances, like digital platforms, blockchain, and the Internet of Things, will continue to reduce transaction and logistics costs, thereby fuelling trade (WTO 2018). But other technologies may reduce trade flows by changing

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the economics and location of production, and transforming the actual content of what is bought and sold across borders.

The net impact of the entire wave of new technologies is unclear, but in plausible future scenarios they could dampen goods trade while further boosting flows of services and data. Evidence of technology increasing data and service trade has been found in previous research (eg. Bughin and Lund 2017, Freund and Weinhold 2000), but the literature to date has not provided evidence at a detailed level of value chains.

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Despite the increased trade tensions, rise of nationalism, and well-documented slowdown in global goods trade, globalisation is not in retreat

For companies and countries alike, these trends will benefit some companies, but will also create losers. A growing imperative for all is to focus on digital skills and infrastructure, service capabilities, and innovation. In this column we consider some of the possible effects and estimate the magnitude of potential change.

Some technologies will improve trade logistics and transaction costs, boosting goods trade

Companies trading across borders often lose time and money to customs processing or delays in international shipments and payments. But a number of new technologies can ease these frictions.

Digital platforms, for instance, connect buyers and sellers directly, lowering the costs of search and coordination (McAfee and Brynjolfsson 2017). They have created seamless global marketplaces in areas such as e-commerce, payments, travel, learning, and labour services – and there is room for much more growth. Alibaba's AliResearch projects that cross-border B2C e-commerce sales alone will reach approximately $1 trillion by 2020. B2B e-commerce could be five or six times as that figure.

While some of those transactions may substitute for traditional offline trade flows, e-commerce could still spur some $1.3 trillion to $2.1 trillion in incremental trade by 2030, boosting trade in manufactured goods by 6–10%. This will include many small businesses that can directly reach customers in other countries. eBay, Alibaba, Amazon, Jumia and other online marketplaces are enabling the rise of 'micro-multinationals' – today, startups tap global talent, finance, and consumers from day one (McKinsey Global Institute 2016).

Logistics technologies also continue to improve. The Internet of Things can track shipments in real time, while AI can route trucks based on current road conditions. Automated document processing can speed goods through customs. Some companies are developing fleets of self-driving trucks, and a number of ports worldwide have introduced automated cranes and guided vehicles that can unload, stack, and reload containers faster and with

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fewer errors. Blockchain has potential for tracking shipments and triggering faster automated payments, although it will be some time before its scalability and success in trade can be determined.

We calculate that this group of technologies could reduce shipping and customs processing times by 16–28%. The academic literature finds that a 1% reduction in trade costs can result in a 0.4% increase in trade flows (Djankov *et al*. 2010, Hausman *et al*. 2013).

Based on these figures, we estimate that these technologies together could potentially boost overall trade by 6–11% by 2030 compared to the baseline, worth some $4.7 trillion in annual trade. Looking at each country's average processing times and bilateral flows, it appears that Bangladesh, India, and Indonesia are among the countries that could make the biggest gains.

Automation and additive manufacturing change production processes and the relative importance of inputs, and may reduce goods trade

The diffusion of automation and artificial intelligence technologies suggests that multiple industries will experience a profound shift in the importance of capital versus labour (McKinsey Global Institute 2017). The growing adoption of automation and AI in manufacturing makes labour costs less important and other factors – such as proximity to consumer markets, access to resources, workforce skills, and infrastructure quality – more important.

As a result, we can already see a trend towards moving production closer to end consumer markets, such as the US and the EU. Today, only 18% of goods trade is from a low-wage to a high-wage country, and that share is shrinking in the most labour-intensive industries, such as textiles and apparel. Both Adidas and Nike, for instance, have designed new lines of athletic shoes that make them amenable to full automation of the production process – and they have opened those new factories in Germany and the US (Adidas) and Mexico (Nike).

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Figure 1. The effect of technology on trade flows in value chains

Technology is resahping trade flows in value chains in three ways

	Technologies	Impact
Reduce transaction costs	• Internet of things • E-commerce • Blockchain • Automated document processing	Up to **+$4.7T** increase in goods trade by 2030 as transaction costs are reduced
Change production processes	• AI • Automation • 3D printing	Up to **-$4T** reduction in goods trade by 2030 as production moves closer to consumers
New goods	• Electric vehicles • Renewables • Digital goods	Up to **-$310B** less goods trade by 2030 through changes in composition and tradability of goods

Source: McKinsey Global Institute (2019)

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In addition to affecting the trade in manufactured goods, automation will influence trade in services. Many call centre and help desk services are already 'staffed' by virtual agents, which are adding natural language processing abilities and beginning to handle a wider range of tasks. This is leading some companies to automate customer support and back-office services rather than offshoring them. This trend could reduce the $160 billion global market for business process outsourcing, now one of the most heavily traded service sectors.

Additive manufacturing (3D printing) could also influence future trade flows. Most experts believe it will not replace mass production over the next decade; its cost, speed, and quality are still limitations. But it is gaining traction for prototypes, replacement parts, toys, shoes, and medical devices. Since 3D-printed goods can be produced near the point of use, they would eliminate the need for international shipping (although they may increase data flows as design files are transmitted).

While this could reduce trade in some individual products substantially, the drop is unlikely to amount to more than a few percentage points across all manufactured goods by 2030. In some cases, additive manufacturing could even spur trade by enabling customisation.

Overall, we estimate that automation, AI, and additive manufacturing could collectively reduce global goods trade by up to 10% by 2030, as compared to the baseline, or $4 trillion in annual trade flows. However, this reflects only the direct impact of these technologies on enabling production closer to end consumers in advanced economies.

It is also possible that these technologies could lead to nearshoring and regionalisation of trade instead of reshoring in advanced economies, impacting both modes of transportation (eg. overland and air cargo replacing container shipping) and trade corridors.

We already see that intra-regional trade has grown faster than inter-regional trade since 2013, a trend seen worldwide but particularly notable as regional value chains are developed in Asia and in the EU28 (McKinsey Global Institute 2019).

New technologies may also have indirect – and unexpected – impacts on trade flows

As technology transforms some products and services, it will also alter the content and volume of trade flows. Some of these may have unexpected consequences for trade flows.

Renewable forms of energy, such as solar and wind, are less tradable than carbon-based fuels such as coal and LNG. The ongoing decarbonisation of economies and shift to renewable energy may therefore reduce trade in energy.

As another example of indirect impacts on trade, growing adoption of electric vehicles could reduce trade in auto parts. McKinsey estimates that electric vehicles will make up some 17% of total car sales globally by 2030 (up from 1% in 2017), but as their drivetrains have only about 15% as many moving parts as internal combustion engines, this trend could reduce the hundreds of billions of annual trade in vehicle parts by up to 10% while also dampening oil imports (over half of which are used in transportation).

The shift from physical to digital flows that started years ago with individual movies, albums, and games is now evolving once again as companies such as Netflix, Tencent Video, and Spotify popularise streaming and subscription models. Streaming now accounts for nearly 40% of global recorded music revenues.

Cloud computing uses a similar pay-as-you-go or subscription model for storage and software, freeing users from making heavy capital investments in their own IT infrastructure. The shift from physical goods to streaming, leasing,

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and pay-as-you go services is only in its infancy. This will affect not only the composition of trade – from physical goods to services – but likely also the relative value of services.

The rising importance of services

The net impact of these countervailing forces on global trade flows is uncertain. But in plausible scenarios, it is quite possible that the next impact could be to further accelerate the shift in global trade flows from goods to services. This is consistent with other research on the causes of the slowdown in trade (Timmer *et al*. 2016).

Already today, services trade is growing 60% faster than goods trade overall. Some types of services, such as IT services, telecom, business services, and IP royalties, are growing 2-3 times as fast as goods trade.

Moreover, 30% of the value of traded goods comes from the embedded services in their production, such as engineering and design, financial services, distribution, and marketing (Miroudot and Cadestin 2017). Counted in value-added terms, services already account for at least 45% of global trade flows.

5G wireless networks, virtual reality, and augmented reality may all give a boost to services in the future. The advent of ultra-fast 5G wireless networks opens new possibilities for delivering services globally. Remote surgery, for example, may become more viable as networks transmit sharp images without any delays and robots respond more precisely to remote manipulation. In industrial plants, 5G can support augmented and virtual reality-based maintenance from remote locations, creating new service and data flows.

Concluding remarks

Despite the increased trade tensions, rise of nationalism, and well-documented slowdown in global goods trade,

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globalisation is not in retreat (Lund and Tyson 2018). Rather it is entering a new chapter that is being driven by the flows of information and data, as well as technological changes reshaping industry value chains. ■

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Cyber resilience as a global public good

First principles recognise cyber resilience for what it is, a global public good. Benoît Cœuré considers international cooperation and shares his thoughts on how cooperation can work both from the top down and from the bottom up

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The financial system is changing fast. Digitalisation has led to improvements in access to services, as well as in their quality and convenience. In the field of payments, services are increasingly instant, 24/7 and globally available. Non-bank participants, meanwhile, are disrupting traditional intermediation. Artificial intelligence and machine learning are just two of the innovations promising to revolutionise financial services.

But revolution and evolution typically come with new risks, while not eliminating all the old ones. Criminals, for example, have always exploited technology. In 1973, the chief teller at a branch of the Union Dime Savings Bank in New York used the recently introduced computers to steal 1.5 million dollars from hundreds of accounts – the largest recorded theft from a savings bank at the time[1]. Identity theft, fraud and robbery are as old as human society.

Yet, today thieves, fraud and robbers can leverage financial systems which are digital and global, making the threat remarkably larger. Cyber criminals often target the weakest entry points and exploit these vulnerabilities to penetrate the global financial network. The hackers who stole 81 million dollars from Bangladesh Bank's account in New York in 2016 most probably did so from the other side of the world.

State actors with no financial motivation and an ability to cause even greater destruction are also lurking. And even more worryingly, we are seeing a new form of organised crime. The dark web is home to a number of networks where access credentials and penetration tools are sold, hacking jobs are allocated to the lowest bidder and proceeds are laundered using cryptocurrencies.

The implications for policymakers are clear. Because cyber risks are borderless, they can only be tackled jointly at the global level[2].

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In my remarks I will first describe what international cooperation currently looks like in this area, before sharing some thoughts on how this cooperation can work both from the top down and from the bottom up. My remarks should be considered through the lens of both the policy and implementation work of the CPMI and the work of the ECB, together with other European institutions, to put into practice at European level the internationally agreed rules.

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... we need to find solutions to the issues related to privacy, data protection and reputational concerns so we can keep our financial system safe

Protecting the core and securing the periphery

The CPMI, as the global standard-setter for payments, clearing and settlement, naturally plays a key role in the global governance of issues related to cybersecurity. Together with the work of the G7 Cyber Expert Group, the Financial Stability Board and other international standard-setting bodies, such as the Basel Committee on Banking Supervision (BCBS) and the International Organization of Securities Commissions (IOSCO), the work of the CPMI provides the necessary basis for authorities around the world to help protect the financial system against cyber fraud.

The CPMI's overarching strategy is, in a nutshell, to *"secure the periphery and protect the core."* By the periphery, we mean the outer layers of the financial system – the endpoints and networks through which financial institutions connect to systemically important wholesale or interbank payment systems. That is, those endpoints exploited by the hackers to steal funds from Bangladesh Bank.

To minimise such risks, last year we published a report that sets out a flexible way for both public and private stakeholders to prevent, detect, respond to and communicate about fraudulent payments and payment requests[3].

The other half of our strategy relates to the core of the financial system – the critical payment systems and financial market infrastructures (FMIs) that ensure the smooth functioning of our financial system – the backbone, or the 'plumbing'[4]. To protect this core, three years ago the CPMI, together with our colleagues at IOSCO, published a report on cyber resilience for FMIs[5].

This was the first internationally agreed guidance on cyber security for the financial industry. Today, it still provides a coherent approach that requires strong governance and oversight of all aspects of prudent cyber risk management at FMIs, including robust testing, situational awareness and continued learning.

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And our approach is not just for FMIs. It can be applied to almost any financial or non-financial company. Indeed, one of the findings in the recent BCBS report on cyber practices is that the CPMI-IOSCO Guidance is one of the three standards currently used by banking supervisors[6].

Implementation is crucial but challenging

Of course, the proof of the pudding is in the eating. The value of the work of standard-setting bodies lies in its implementation. CPMI and IOSCO authorities have been working closely with FMIs in their respective jurisdictions on the implementation of the CPMI-IOSCO Guidance. I will expand in a moment on what the ECB has done in this respect. At the international level, we plan to begin more detailed implementation monitoring this year.

Our wholesale payments strategy, meanwhile, has been endorsed by all BIS governors, who are committed to implementing it in due course. To promote the widest possible application of the strategy and achieve global cohesion in standards, I, together with Mark Carney, Governor of the Bank of England and chair of two BIS central bank groups, recently addressed around 100 other central bank governors, encouraging them to commit to the strategy and providing details about how we can help each other learn and evolve. Many have already taken us up on our offer of support.

Beyond this, we are coordinating with industry stakeholders to develop best practices to prevent wholesale payment fraud across the ecosystem, and sharing these best practices through our outreach efforts.

Last September, I co-chaired here at the Banque de France the first roundtable among CEOs of the 22 largest global and regional FMIs and their supervisors. The meeting explored how we collectively – FMIs and supervisors – could strengthen cyber resilience to defend against a common threat.

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We identified three areas where the challenges require us to work closely together to find solutions:

(i) data integrity;

(ii) information-sharing; and

(iii) third-party service providers.

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Data integrity is a broad concept but a lot of our discussion today focuses on the two-hour recovery time objective. The CPMI-IOSCO Principles for Financial Market Infrastructures require FMIs to be able to recover from an operational outage within two hours.

At first, many dismissed this target as illusory. But technological progress has since made it universally achievable for most advanced and systemically important FMIs. Yet, there remains a critical risk that a rush for recovery after a cyber outage may be counterproductive in the event that the underlying data have been corrupted. Rebooting a system with corrupt data that break every participant's reconciliation tools and sow further market discord would, to put it bluntly, be a disaster.

How to tackle this issue is one of the topics that the industry is discussing in three international working groups that emerged from the CEO roundtable. There are a number of possible avenues to explore, including contingent arrangements, segregated ledgers and frequent reconciliations. The CPMI and IOSCO will act as catalysts for these groups, as needed, and we will keep up to date with their progress.

Similar groups are planned to explore open issues related to the two other areas I mentioned before: information-sharing and third-party service provision. For information-sharing, common protocols exist to share financial events. But for operational incidents these protocols have so far been segregated by type of FMI, market and jurisdiction. A common international protocol for operational incidents could enable faster and better-informed responses.

For third-party service provision, such as cloud services, cooperation among FMIs can improve safety arrangements by providing a clearer view of common service providers' risk management practices. Common action also has the potential to improve efficiency by avoiding the duplication of third-party risk assessments.

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The Eurosystem's cyber resilience strategy

Taken together, the work of the CPMI and other standard-setting bodies has provided FMIs and other entities with a rich and diverse environment in which to learn how to effectively fend off cyber incidents, which are becoming more frequent and increasingly sophisticated.

Work by other institutions supports these efforts at various levels. At a global level, for example, work by the G7 Cyber Expert Group sets out fundamental elements for risk management and simulates the impact of major cross-border cyber incidents involving G7 financial authorities[7].

Work at regional level can feed into and inform such global initiatives. The ECB is a good example of both bottom-up and top-down international cooperation. On the one hand, the ECB has taken the lead in implementing the CPMI-IOSCO guidance in recent years. The Governing Council quickly approved the Eurosystem Cyber Resilience Strategy for FMIs, which looks to operationalise the CPMI-IOSCO Cyber Guidance in the 19 euro area countries, in March 2017.

At the same time, the ECB has also made an important contribution to establishing international best practices and building cyber resilience capacities in developing countries and emerging market economies.

More specifically, the Eurosystem cyber strategy is built on three core pillars:

(i) FMI resilience;

(ii) sector resilience; and

(iii) strategic industry-regulator dialogue. Let me briefly explain the key initiatives under each pillar.

Under the first pillar, FMI resilience, in December 2018 the ECB published its cyber resilience oversight expectations (CROE), a tool for both FMIs and overseers[8]. These expectations contain detailed best practices for operationalising the CPMI-IOSCO Guidance. The Eurosystem is currently repeating a cyber survey among 76 FMIs to evaluate the extent to which the sector has improved in terms of cyber maturity and to assess the macro vulnerabilities of the sector more broadly.

Last year, the Eurosystem also developed the European framework for Threat Intelligence-based Ethical Red Teaming (TIBER-EU)[9]. Red teaming helps institutions to assess, by means of controlled 'ethical hacking', if and how an entity is capable of withstanding a cyber attack.

And because TIBER-EU involves high-end testing on live production systems, we are currently reflecting on how to foster an accreditation and certification capability in the EU. This would allow cybersecurity service providers to raise standards around threat intelligence and red team testing and to have their capabilities in this field validated.

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Both the CROE and TIBER-EU are tools that could eventually be used around the world. In fact, I am pleased to announce that the CROE has recently been embraced by the World Bank with a view to promoting global harmonisation and enhancing the cyber resilience of FMIs in developing and emerging countries under its mandate.

And, since its publication, TIBER-EU has been adopted by the ECB and a number of European countries. The ECB is also in close dialogue with other jurisdictions that are considering TIBER-EU as a tool for their respective financial sectors.

Under the second pillar of the Eurosystem's cyber strategy, sector resilience, we recognise the strong interconnectedness of the financial ecosystem and the potential of a coordinated cyber attack to trigger a broad contagion effect, which may have an impact on the financial sector as a whole.

In June 2018, the ECB hosted UNITAS – a market-wide crisis communication exercise – which facilitated discussion among FMIs active at the pan-European level. These discussions focused on the scenario of a cyber attack on financial infrastructures that resulted in a loss of data integrity and broader knock-on effects.

The exercise revealed that there were weaknesses at the European level, which are now being followed up on through the Euro Cyber Resilience Board for pan-European Financial Infrastructures (ECRB), which is a key element of the third pillar of the Eurosystem's cyber strategy – a strategic industry-regulator dialogue.

Like the CPMI's CEO roundtable, the ECRB was established last year to facilitate a strategic cyber dialogue between pan-European FMIs and European authorities[10]. It is not a classic dialogue between regulators and industry. As one member put it, *"we are all victims and we have to address the cyber challenge together."*

Based on the results of the first round of our cyber survey and on the UNITAS exercise, the ECRB is focusing on five key areas:

(i) information-sharing;

(ii) European crisis management;

(iii) training and awareness;

(iv) ecosystem recovery and coordinated reconciliation; and

(v) third-party risk.

The work on information-sharing can feed directly into the global discussion held at CPMI-IOSCO level. The ECRB has established a working group with the market to design the building blocks for effective information-sharing, which we will operationalise by the end of 2019.

On pan-European crisis management, a working group will determine what is considered to be a crisis, the key stakeholders that should be involved in crisis situations, and when such crisis management arrangements should be triggered. The ambition is to have a range of playbook scenarios that will be regularly tested at a collective level.

On training and awareness, the ECRB will also host an industry workshop in the second half of 2019, exchanging best practices to raise general cyber awareness among staff at all levels in order to change their behaviour in the light of the actual and perceived cyber threats.

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Finally, also in the second half of 2019, the ECRB will echo similar initiatives at the CPMI-IOSCO level and turn its attention to ecosystem recovery and coordinated reconciliation, and third-party risk. In other words, it will focus on how to respond to a major cyber incident or prevent an incident stemming from our ever-expanding supply chain.

This work is now led by my colleague Sabine Lautenschläger, who has taken over the responsibility for payments and market infrastructure oversight in the ECB Executive Board.

Conclusion

Much progress has been made in recent years in strengthening cyber resilience, thanks in large part to the smooth interplay between global standard-setting bodies, regional authorities and industry stakeholders.

But because the nature of the threat landscape is changing constantly, the risk of a major cyber incident remains real and is, in all likelihood, rising. Failure to adequately protect against cyber attacks may dent confidence in the stability of the financial system and have more far-reaching repercussions on the broader economy.

To avert these risks, and to stay ahead of those trying to damage our financial system, we need to leverage the tools and best practices that already exist and strengthen multilateral cooperation to promote innovative ideas, practical solutions and experience-sharing.

In doing so, we need to find solutions to the issues related to privacy, data protection and reputational concerns so we can keep our financial system safe. ■

Benoît Cœuré is Chair of the Bank for International Settlements' Committee on Payments and Market

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Endnotes

1. See Fosburgh, L (1973), "Chief Teller Is Accused of Theft Of $1.5 Million at a Bank Here", New York Times.

2. See also Cœuré, B (2018), "The future of financial market infrastructures: spearheading progress without renouncing safety", speech at the Central Bank Payments Conference, Singapore, 26 June; and Cœuré, B (2018), "The new frontier of payments and market infrastructure: on cryptos, cyber and CCPs", welcome remarks at the Economics of Payments IX conference, Basel, 15 November.

3. See CPMI (2018), Reducing the risk of wholesale payments fraud related to endpoint security, May.

4. Examples include real-time gross settlement (RTGS) systems, central counterparties (CCPs) and central securities depositories (CSDs).

5. See CPMI-IOSCO (2016), Guidance on cyber resilience for financial market infrastructures (FMI), June.

6. The two other standards are the cyber framework of the National Institute of Standards and Technology and the ISO guidelines for cybersecurity. See BCBS (2018), Cyber-resilience: range of practices, December.

7. See G7 Cyber Expert Group (2018), Fundamental elements for third-party cyber risk management in the financial sector, 12 October.

8. See ECB (2018), Cyber resilience oversight expectations for financial market infrastructures, December.

9. See ECB (2018), TIBER-EU framework: How to implement the European framework for Threat Intelligence-based Ethical Red Teaming, May.

10. See Cœuré, B (2018), "A Euro Cyber Resilience Board for pan-European Financial Infrastructures", introductory remarks at the first meeting of the Euro Cyber Resilience Board for pan-European Financial Infrastructures, Frankfurt, 9 March; and Cœuré, B (2018), "Euro Cyber Resilience Board for pan-European Financial Infrastructures", 7 December.

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Providing assurances about customers' data security

The public are becoming more engaged with data security. Geoff Forsyth says it is now clear that people are prepared to hit companies who don't take data security seriously where it hurts

A recent survey, carried out to help analyse the public's changing attitude to data security, has brought to the fore a number of issues regarding trust, communication and spending trends, which should come as no small cause for concern for businesses.

The UK study uncovered a public that is more engaged on the subject of data security than ever before, and one which knows the value of its personal data, leading to new expectations of the companies who handle that data on a daily basis.

What is also clear is that people are prepared to hit companies who don't take data security seriously where it hurts; their bottom line.

Some 44 per cent of respondents to the survey stated that, following a data breach, they would choose not to spend with the affected company for at least a few months, while 41 per cent stated that a data breach would be the end of their relationship with the affected company forever.

When asked what companies could do to salve the issue after a data breach, 47 per cent of respondents stated that announcing PCI DSS compliance would go a long way to restoring some level of trust, while 50 per cent would want to see a third-party regulator state that the affected company is safe again.

However, 43 per cent of respondents noted that a company admitting responsibility and investing money in security would entice them into spending again, prompting the question how can companies best communicate their security attitudes to customers, and how can they show that they take the issues of data security seriously?

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Make it the most important issue

Many companies opt to hide data security information away on their websites, treating it like a niche issue or one which is the sole purview of the IT specialist. This should not be the case, however.

Make data security the issue around which your company is built. If you are ever affected by a data breach, the key information should be published front and centre on your website:

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Share with your customers the partners with whom you work to establish your security protocols; their reputations will bolster your own and show that you are actively seeking out expertise and investing in data security

- What has been taken?
- What should they do next?
- What are you doing to rectify the situation?
- How long until you expect to have the situation in-hand?
- What is the overall risk to the customer in both the short and long-term?

When data breaches have occurred in the past, the first customers hear about it is through the press, you must absolutely ensure that this isn't the case as it may cause irreparable damage to your reputation moving forward.

Reach out as soon as you're aware of a breach. Take ownership of the problem and be open and honest, and avoid the temptation to use PR to mitigate or downplay the severity of the situation.

Deloitte's Privacy Index found that one third of people who found out about a data breach from the company under attack actually ended up trusting the company more than they did before.

A breach, if handled briskly and professionally, can actually be repurposed to build trust with customers. By showing how capable you are and how seriously you take your responsibility as a handler of their data, you can enhance your standing and come out of a bad situation in better shape than before you went in.

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Be honest and encourage realistic expectations

The general public on the whole don't have much time for the minutiae relating to data security. They want to know whether a business is safe or not, but it is important to reach out and discuss that expectation at the beginning of your relationship with them.

100 per cent data security is simply not attainable. It doesn't matter what your budget is, or how talented your InfoSec staff are. You need to let your customers know that you maintain the maximum level of preparedness possible to mitigate any such attacks or breaches and that you invest heavily in what is a potentially catastrophic issue, but breaches do happen. Share key statistics on the subject and make the information engaging to your customer base (see below).

Your openness and honesty will work in your favour. Any research done by customers will reflect the same line that you have shared and with any luck your customer's trust in you will grow as a result.

Make the information you share accessible to everyone, but don't patronise

As Steve Jobs famously said *"Simple can be harder than complex: You have to work hard to get your thinking clean to make it simple. But it's worth it in the end because once you get there, you can move mountains"*, and he couldn't have been more right.

Making the information you share with your customer base accessible (simple) enough for those totally uninitiated in issues of IT, let alone the peculiarities of data security, while being complicated enough to fully inform the more savvy is something you should aim for.

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As a minimum you should aim for bullet points to underline the basics with plenty of detail for those who want to know more. Be prepared to discuss issues in greater detail with customers who wish to dive in and do not be tempted to patronise.

Where possible, de-scope!

Look at ways of encrypting your data and, where possible, ensure there is no sensitive data for hackers to access in the first place. For example, if de-scoping technologies are used for payments that are handled via a contact centre, sensitive payment card data never enters the enterprise and therefore any related risks are removed.

It also means your business is compliant with the PCI DSS, which improves the ongoing security of all telephone, IVR, web and SMS financial transactions.

Have a plan and don't be afraid to seek professional help

Investing in the best crisis response strategy that you can will go a long way towards establishing trust and faith in your company. Share with your customers the partners with whom you work to establish your security protocols; their reputations will bolster your own and show that you are actively seeking out expertise and investing in data security. ■

Geoff Forsyth is CISO at PCI Pal

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Open banking: threat or opportunity?

Redefining banking in a financial services market where your biggest competitor may be Amazon or Google, not a traditional bank, is a real threat to the incumbents. Tiffany Carpenter considers the options

Open banking may not have made much of an impression on consumers yet. But it's a topic that the industry cannot afford to ignore. Tier one UK banks are already bound to grant licensed startups access to transaction-level data, and smaller banks are likely to have to follow suit in the near future. The potential impact on the banking landscape is profound.

Today, the standard business model for retail banks is to build strong relationships with their customers by offering free current accounts and other incentives. These services are a net cost to the business, but they help the banks win trust and provide a channel for marketing more profitable products, such as mortgages, loans and wealth management services.

Open banking threatens to sweep this business model away like an avalanche. Agile fintech companies are already developing apps that aggregate all the financial services that a customer receives from any provider, creating a single point of control.

This will certainly improve the banking experience for most consumers. But it will also add a new layer between banks and their customers. All communication with the customer will happen via the app – and the app provider will control that communication channel, not the banks.

According to market analysts, this poses a real threat. If a bank can't upsell high-value services to its customers, it may be left with a thin share of the market. Banks could be drowning in current accounts while app providers skim the cream of profitable loans and investment services off the top. Bain & Company point out that similar disruptions in industries, such as music and travel, have seen incumbents' profits fall by 10% to 20%, often within fewer than five years.

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Threat or opportunity?

While the stakes are high, the odds are still in the banks' favour – at least for now. For decades, they have collected data on millions of customers and billions of transactions, across the whole spectrum of financial services. This data is a priceless source of insight that banks can use to create customer experiences that their data-poor fintech competitors simply can't match.

For example, instead of just helping customers make payments or check their balance, a new generation of banking apps could provide users with much more relevant, personalised advice. By comparing individual spending patterns with the behaviour of a wider population of users, they could pinpoint topics that users really care about –reducing utility bills, for example, or paying off a mortgage – and suggest helpful strategies for meeting their financial goals.

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An outstanding user experience can easily seduce customers. And if you can't provide one, your competitors certainly will

Serious competition

Banks aren't just worried about competition from fintech startups. There's also a risk that other data-rich companies could make a beeline for the financial services market. Amazon, Apple, Google and other tech giants already have enormous quantities of information about consumer spending habits, as well as some of the world's most talented data scientists, UI and UX developers.

If they want to build the world's best banking app, they seem to have all the right tools already. What's to stop them from seeing financial services as their next market to dominate?

Again, the answer is that banks still have the advantage, at least in the short term. There is more to a user's personal finances than just online shopping habits. And banks have a much more complete picture of how people borrow, spend and invest their money across mortgages, loans, credit cards, savings accounts, stocks and funds.

More importantly, customers trust their bank to manage both their information and their money. As a heavily regulated industry, banks simply cannot afford to play fast and loose with their customers. Meanwhile, barely a week goes by without another scandal about an internet company selling, losing or misusing customer data.

So while you probably trust online retailers to deliver your shopping, you might still have a few qualms about letting them manage your pension.

That said, customers' trust and loyalty are finite commodities. If banks don't act on their advantage now, they will lose it little by little. An outstanding user experience can easily seduce customers. And if you can't provide one, your competitors certainly will.

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On your marks

In short, the race to build the killer banking app is on – and banks, fintechs and other players are all in the running. Whoever gets there first will win it all, leaving the others scrambling to redefine their role in a banking industry that bears little relation to today's world.

The difference between winning and losing, as we've already hinted, will be in the data. If banks can mobilise the treasure trove of data they already possess and harness artificial intelligence and machine learning to bring insights closer to the point of customer interaction, then they will be in a powerful position to lead the next stage in the evolution of financial services.

And that's not just wishful thinking. Take a look at our case study with ICA Banken. SAS solutions are helping ICA Banken analyse customer behaviour online and combine it with historical banking data to create a fully personalised and customised user experience. While customers browse the ICA Banken site, intelligent algorithms automatically assess their needs and display helpful information and relevant offers in real time, resulting in a tenfold increase in conversion rates for the bank's campaigns. ■

Tiffany Carpenter is Head of Customer Intelligence at SAS UK & Ireland

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Stablecoins, central bank digital currencies, and cross-border payments

Digital currencies are growing rapidly. Tobias Adrian considers the implications and what the future holds for the international monetary system

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Just a year ago, the talk was all about cryptoassets: Bitcoins and its multiple evolutions. We have moved on, since then. Now, we must reckon with eMoney, a new form of digital currency with the potential to be much more disruptive. I will define eMoney, then discuss its implications in a closed-economy setting.

I will suggest that its adoption may be extremely rapid — but that it may raise significant risks. Policies to counter these risks — as in a sleight-of-hand magic trick, you will see — yield a synthetic version of central bank digital currency (CBDC) with various advantages relative to the full-service version just discussed, and studied in a recent IMF publication.

Then, I will consider the open-economy extension of these ideas. While eMoney brings key advantages to cross-border payments, it may pose risks to the stability of the international payments system. It could also encourage dollarization.

As policymakers, we must turn our attention to the international monetary system, toward new solutions — including technological ones — and enhance global cooperation by upholding the role of the IMF as the caretaker of this fragile system, though one with great opportunity.

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What is eMoney?

eMoney is a means of payment and a store of value fully backed by fiat currency. It is the digital equivalent of a pre-paid card. eMoney, in my definition, can be issued as tokens or accounts, settled in a centralized or decentralized fashion. eMoney thus also includes a version of 'stablecoins' that is fully backed or collateralized by fiat currency — what some call 'digital fiat currency'. eMoney can be traded through an app on your cellphone, between individuals and businesses alike with ease and immediate effect.

Think of WeChat Pay and AliPay in China, M-Pesa in Kenya, Bitt.com in the Caribbean, and USD-coin by Coinbase and Circle. Other major tech companies are also rumored to introduce their own form of eMoney very soon. eMoney, in its various forms, covers more than 25 currencies to date, and that number is growing rapidly. Adoption rates are impressive.

In Kenya, for instance, 90 percent of the population over 14 years of age uses M-Pesa. In China, transactions in eMoney reached $18.7 trillion — more than all transactions handled worldwide by Visa and MasterCard combined. Furthermore, many operators now offer debit cards that can be used with stablecoins, turning them into an efficient means of payments for most merchants.

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Would eMoney available across borders spell the end of weak currencies? It would certainly put a lot more pressure on countries with weak institutions and policy frameworks

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Advantages of eMoney

Why is adoption of eMoney so rapid and widespread? First, because its value is stable relative to fiat currency. The exchange rate is 1 to 1 (or very nearly), not 6,000 to 1 one day and 3,000 to 1 the next, as for some crypto-coins.

In fact, eMoney works exactly like a strict currency board, with each unit of eMoney — token or account entry — fully backed by fiat currency. You pre-fund your eMoney holdings, and your funds are stored in a trust account.

But why use eMoney and not fiat currency, since the first is merely a digital representation of the second?

- First, for convenience. eMoney is better integrated into our digital lives, and often issued by companies that fundamentally understand user-centered design and integration with social media.

- Second, for transaction costs. Transfers in eMoney are near-costless and immediate, and are thus often more attractive than card payments or bank-to-bank transfers.

- Third, for trust. In some countries where eMoney is taking off, users trust telecom and social media companies more than banks.

- Fourth and finally, for network effects. Social media and other digital-economy giants contemplating the introduction of eMoney have enormous installed bases through which new payment services can rapidly spread, driven by strong network effects.

Risks to eMoney

eMoney is probably coming to a phone near you. And with it, a world of convenient, costless, and immediate

payments at the touch of your fingers… Sounds rosy, but there are problems related to customer protection, safety of the payments system, and ultimately financial stability.

The first risk is to the value of eMoney. If it is issued over and above the funds held in the trust account, there could be a run on eMoney, and a significant loss of wealth. We know how destabilizing large devaluations following failed currency boards are.

The second risk is to the security of the trust account. Despite the allusion to 'trust', funds could be invested in risky or illiquid assets or encumbered as collateral. Redemption of eMoney into fiat currency may not always be possible.

The third risk is to the interoperability of eMoney and thus to market contestability. We noted earlier the strong network effects in payments. If eMoney issued by different providers is not interoperable, only the largest providers will survive. The fat cats will eat the nimble and potentially more innovative mice. Even regulation mandating common technological standards will not resolve the issue.

It was easier to get cell phones from different providers to talk to each other. In the case of eMoney, interoperability requires a common settlement platform — a way to seamlessly, cheaply, and securely transfer funds between trust accounts. You will not be able to redeem the eMoney I send you for fiat currency unless a corresponding amount of fiat currency is transferred from my provider's trust account to yours.

Tackling risks to eMoney—a potential role for central banks?

While eMoney inexorably grows — potentially booms — in front of our eyes, major risks also rise. How do we tackle them?

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One way is for central banks to get involved. Other approaches are also possible; less impactful, though perhaps safer. We will face difficult choices ahead as policymakers. But we will have to make them.

Central banks could offer eMoney providers access to their reserve accounts, under strict conditions, of course. Through effective supervision, central banks could check that eMoney issuance is fully backed; there goes risk number one.

Moreover, eMoney holdings would become extra safe and liquid for customers, especially if reserve accounts were protected from other creditors of eMoney providers in case of bankruptcy. That would take care of risk number two, minus the hassle of claiming one's funds.

Finally, central banks would ensure interoperability between eMoney issued by different providers by offering a common settlement platform between trust accounts; down with risk number three. Mind you, other risks would be introduced. Most notably, the risk of a potential and partial disintermediation of commercial banks if some depositors preferred holding eMoney. But let us leave that for discussion.

Synthetic CBDC

I would instead like to draw your attention to the fact that while we were focused on alleviating risks — on protecting consumers and financial stability, all laudable goals — we inadvertently created CBDC! A new version, that is, which we call 'synthetic CBDC'.

Yes, if eMoney providers can keep client funds as central bank reserves, and if these are protected from other creditors, then, by proxy, eMoney users can hold, and transact in, a central bank liability. Isn't that the very definition of CBDC?

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Synthetic CBDC has notable advantages relative to the full-fledged version from the previous presentation, in which the central bank creates tokens or offers accounts to the public. Synthetic CDBC outsources several steps to the private sector: technology choices, customer management, customer screening and monitoring including for 'Know Your Customer' and AML/CFT (Anti-Money Laundering and Combating the Financing of Terrorism) purposes, regulatory compliance, and data management — all sources of substantial costs and risks.

The central bank merely remains responsible for settlement between trust accounts, and for regulation and close supervision including eMoney issuance. If done appropriately, it would never need to lend to eMoney providers, as their liabilities would be fully covered by reserves.

A synthetic CBDC is essentially a public-private partnership that encourages competition between eMoney providers and preserves comparative advantages. The private sector concentrates on innovation, interface design, and client management. And the public sector remains focused on underpinning trust.

Open-economy complications

Check-mark? Have we finished work and can now stroll along the inviting Mythenquai just outside? Not so fast. Things get a little more complicated as we consider cross-border payments.

Clearly, eMoney could bring enormous benefits to cross-border payments, which currently tend to be slow, opaque, and expensive. The token version of eMoney could also facilitate cash payments in cross-border financial trades once assets migrate to the blockchain (allowing seamless 'delivery versus payment'). But these gains must be weighed against risks. An example may help.

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The case of a person in Zurich, transferring Swiss franc eMoney to a friend in, say, Italy, is simple. Marlis clicks a button, and Francesco gets the funds. But suppose Francesco wants to receive euro-based eMoney. To simplify matters, suppose both use the same platform — a fictitious 'Pay-n-Chat'. Then Pay-n-Chat Switzerland would draw down Marlis' Swiss franc account, and credit Pay-n-Chat Italy, which would issue euro-based eMoney to Francesco.

The only problem is that Francesco's eMoney is now backed by Swiss franc reserves held at the Swiss National Bank. Clearly, this is purely fictitious: I am not insinuating the SNB would actually do this.

As in the popular game of whack-a-mole, the risks we had formerly buried now rise again. Is Francesco's eMoney fully backed? Yes, Pay-n-Chat could continuously hedge its foreign exchange risk. But it has now become a lot harder to be transparent about it. And transparency is key for trust. And trust is key for adoption.

Redemption risk has also re-emerged. What happens when Francesco wants to redeem his eMoney in euros? Pay-n-Chat Italy may be able to draw down reserves it holds with the ECB — again, a fictitious example. Or Pay-n-Chat Switzerland could sell Swiss francs for euros and send those to Pay-n-Chat Italy. Cumbersome, expensive, potentially slow. Exactly the costs these companies are trying to avoid.

So, what might Pay-n-Chat do? Focus on just the main currency pairs for which there are large and relatively balanced capital flows to maximize the matching of eMoney with local currency reserves. But this could imply a fragmentation of the international payment system; much like paving highways while neglecting country roads — those leading to many smaller countries around this world.

Another risk that resurfaces is to market contestability. In our example, Pay-n-Chat Italy extended credit to Pay-n-Chat Switzerland; a mere accounting trick to balance the company's books. But had the transfer involved two

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separate entities, it would have induced credit risk. Clearly, then, transfers will be cheaper if they remain within the same company. Size will matter. Just like in the correspondent banking world, this favours a concentrated market structure. Not only have we stepped back into several of the risks we had formerly identified — and thought we had solved — but entirely new risks also arise, even supposing we could fix those above.

Dollarization risk

One is the risk of facilitating dollarization. In most cases, the Fund is concerned about dollarization as countries lose monetary policy control, and as financial systems become more exposed to exchange rate shocks, while the central bank is constrained in providing liquidity. Dollarization is found to restrain financial development and long-run growth[1].

Dollarization faces headwinds in most countries. Transaction costs of purchasing foreign currency are typically high, storage is cumbersome and risky if banks do not offer foreign currency accounts, and transactions are limited; many countries do not offer clearing and settlement services in foreign currency.

The availability of foreign currency-based eMoney could lower some of the barriers to dollarization. The headwinds could become tailwinds. eMoney could make storage of foreign currency easier, safer, and cheaper. And, importantly, it could greatly facilitate transactions in foreign currency. In addition, it could drastically lower costs of remittances, which would increase foreign currency inflows.

Would eMoney available across borders spell the end of weak currencies? It would certainly put a lot more pressure on countries with weak institutions and policy frameworks. From a world of grey tones, where those muddling through persist, we might face greater contrast; one either makes it or is taken over by foreign eMoney.

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IMF to the rescue

Let's take stock. Uncertainty as to the course of technology and its impact on the financial sector; risks to the international payment system, of fragmentation and instability; risks of dollarization; dangers of weak institutions and policy frameworks… Each calls the IMF into action.

The best defense against loss of monetary autonomy, of excessive dollarization instigated by foreign eMoney, is good policy. IMF surveillance can help. And requests for technical assistance in this area are already on the rise, in number and urgency. We must be ready to answer these calls.

Clearly the IMF can also help with its analytical capacity, to identify disruption, fathom future scenarios, and evaluate how policy choices can favour the more attractive ones. And the IMF's convening power may be needed more than ever, to bolster the international payments system. But this time, also with new technologies.

For instance, the risks and drawbacks to cross-border payments, which we discussed earlier, could be surmounted by greater coordination between countries. What if central banks, which may help eMoney providers develop on domestic markets, also favoured their expansion into cross-border payments? What if they settled transactions by exchanging reserves among each other? Of course, only after further analysis of the benefits and risks — including credit risk — of such bold operations.

Could an international institution — such as the IMF — facilitate these operations by running a common platform, mutualizing credit risks, or at least establishing guidance and regulation? Or could new eMoney be created, with 1-to-1 backing by a basket of fiat currencies, to settle transactions between central banks? Some have called this the eSDR or dSDR.

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Clearly, this is still hypothetical. But given the speed at which we're traveling, we must at least map out the terrain that lies ahead before picking a path.

Wherever we go, the M for 'monetary' in IMF is bound to get a new polish as we focus on the new monetary challenges to the international monetary system. The years to come will be especially exciting for the global financial architecture! ■

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Endnotes

1. See for instance Sebastian Edwards and I Igal Magendzo (2001), "Dollarization, Inflation and Growth," NBER Working Papers 8671, National Bureau of Economic Research, Inc.

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Personal Information Protection Act 2016 (PIPA)

The Bermuda Department of ICT Policy and Innovation review the Personal Information Protection Act 2016 (PIPA) that will come into effect in 2019

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PIPA introduces a right to informational privacy that is bespoke to Bermuda and was drafted to meet the aspirations of a country focused on a future where data is inextricably linked to the quality of life for its residents and citizens.

PIPA builds on Bermuda's blue-chip reputation, its long business relationships with the world's key economies, its world-class regulatory infrastructure and its desire to be in the vanguard delivering 21st century information services.

The law provides a high standard of personal information protection giving confidence to individuals in the growing trust and personal information economy. In addition to providing a fundamental human right, as attested to by the UN Universal Declaration of Human Rights for both self-sovereignty and privacy, PIPA is a critical pillar of Bermuda's cybersecurity infrastructure.

The Bermuda approach

PIPA establishes a progressive framework for the protection of personal information. It was created to meet current European privacy standards on which the 'international network of trust' is based that permits the free transfer of personal information between states providing 'adequate' privacy protection[1]. PIPA's concepts and approach will be instantly familiar to anyone with experience of the OECD/APEC/EU Privacy Principles.

Familiarity provides confidence and legal certainty reduces risk. PIPA creates a privacy framework covering all personal information used by organisations including the Government of Bermuda, and implements standard privacy principles enabling Bermuda to draw on a large body of privacy law developed in other jurisdictions.

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This, coupled with English law and an appeal process ending with the Privy Council in London, provides both familiarity and a strong basis for legal certainty.

PIPA also provides a feature not always found in other jurisdictions; under the legislation, an organisation may request that the Privacy Commissioner issue a *"finding or decision"* concerning its privacy compliance. This means that a business with a new/novel service using personal information (or thinking about setting up in the country) may obtain an official statement as to whether they comply with the law before incurring significant expenditure[2].

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PIPA places Bermuda at the forefront of global privacy protection. It creates a straightforward privacy framework and provides customers with a high level of confidence

Privacy and the United States

PIPA was drafted with the assistance of US attorneys and is based on legislation from an economy reliant on trade with the country[3]. US business can take comfort from this.

However, the US does not have overarching informational privacy legislation. Multiple laws apply to different sectors, different states, and at the Federal level. Such laws do not match the omnibus legislation found in many other countries.

What's more, while one-off deals have been made that enable the transfer of personal information to and from the US, they do not allow it to join the 'international network of trust' that is founded on the European model. Equally, in a truly global world focused on interoperability and agreed standards, the assurances that a world-class privacy and data-sharing regime can offer both individuals and organisations become even more important.

Businesses that use personal information rely on the continued confidence of customers for growth. This is a fundamental issue of trust as the data required from individuals which can personalize and assert their identities and brand loyalties is a critical component in all transactions for goods and services involving customer data.

Recent events have undermined this and actions by a number of ultra-large, publicly-listed technology and data organisations continue to create considerable uncertainty around the future of privacy[4] in the US and around the world.

If you are looking for a jurisdiction that provides an effective and efficient approach to privacy protection, that meets international best practice, and that will boost customer confidence, you need look no further than Bermuda.

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Conclusion

PIPA places Bermuda at the forefront of global privacy protection. It creates a straightforward privacy framework and provides customers with a high level of confidence. ■

Department of ICT Policy and Innovation, Government of Bermuda

1 An application for EU adequacy will be made by Bermuda at the appropriate time
2 Subject to standard limitations
3 Alberta
4 Tim Cook, Apple CEO, proposed a US version of the EU GDPR at the 40th ICDPPC (24/10/2018)

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How the blockchain enables a new economy

This crypto economy will transfigure businesses, government and our society, perhaps even more profoundly than the internet did, William Mougayar writes

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What started as Bitcoin, a model cryptocurrency that captured the imagination of many, is metamorphosing into something bigger: a 'crypto-tech' driven economy with unparalleled global value creation opportunities, not unlike the Web's own economy.

Welcome to the crypto economy.

Contrary to what is seemingly visible today, this crypto economy will not be born by attempting to take over the current financial services system, nor by waiting for consumers to transfer money into cryptocurrency wallets; rather it will emerge by creating its own wealth, via new types of services and businesses that extend beyond money transactions.

The crypto economy is the next phase of the internet's evolution: the decentralization era. Its genesis is Bitcoin's backbone technology: the 'blockchain', a key concept that has entered our technophilic vocabulary, but with applicability reach outside of just Bitcoin.

At its core, the blockchain is a technology that permanently records transactions in a way that cannot be later erased but can only be sequentially updated, in essence keeping a never-ending historical trail. Blockchains also enable assets and value to be exchanged, providing a new, speedy rail for moving value of all kinds without unnecessary intermediaries.

This seemingly simple functional description has gargantuan implications. It is making us rethink the old ways of creating transactions, storing data, and moving assets, and that's only the beginning.

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This 'value exchange' modus operandi is the spark of a domino effect in innovation, unseen yet since the advent of the Web. To understand how cryptocurrencies are leading us into this new frontier, we need to go back and question the meaning of money, then combine those answers with an understanding of the powers of the blockchain.

What is money?

Money is a form of value. But not all value is money. We could argue that value has a higher hierarchy than money. In the digital realm, a cryptocurrency is the perfect digital money.

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This crypto economy is the newest phase of the internet, and it will unravel and blossom over the next 10 years

The blockchain is a perfect exchange platform for digital value, and it rides on the internet, the largest connected network on the planet. The resulting combustion is spectacular: digital value that can move fast, freely, efficiently, and cheaply. That is why we have called the blockchain a new 'value exchange' network.

Cryptocurrency, because of its programmability aspects, embodies digital information that can enable other capabilities. When you 'pay' via cryptocurrency, that transaction could also include additional trust-related rights, such as for property, information, custody, access, or voting.

But money is not the only form of value that the blockchain could move. The genie is out of the bottle: what if the blockchain could move any digital asset?

What if you could take any legally binding construct like identity, ownership, contracts, or rights, and attach it in a unique, unforgeable, and auditable way to the blockchain's cryptographically secured ledger; then you open the path to millions of usage scenarios that gain wings by being tied on the blockchain.

Going one step further, imagine a world of multiple blockchains, not just one; and we end-up with a huge overlay network of decentralized services that are open and accessible to anyone.

Therefore, the blockchain enables a new form of meta-transaction where the value is represented by what it unlocks at the end of the transaction, not just by an intrinsic monetary value that gets deposited in a static account.

It sounds like a type of stock market functionality that allows the trading of an unlimited number of unregulated value elements, unlike financial securities that are regulated.

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And, it is more distributed, more decentralized, and more active in the sense that your 'wallet' can trigger actions that are directly wired into the real world.

How do we get there?

With most enabling technologies, we typically begin by duplicating old habits, often by doing the same processes faster or cheaper. Then we start to innovate by doing things differently, and by applying new ideas that we couldn't implement before. That's how the internet took off as soon as we started to program it with 'Web applications', and it is precisely the path that the crypto-tech revolution is on.

If Bitcoin (or any cryptocurrency) is programmable money, the blockchain is also programmable value, programmable governance, programmable contracts, programmable ownership, programmable trust, programmable rights, programmable assets, and more.

This gets us to the next nugget in this emerging puzzle: how do we create new value?

You create value by running services on the blockchain.

Buckminster Fuller once said: *"You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete."* He is right.

That is exactly what is happening. Bitcoin and cryptocurrencies will succeed; not by mounting frontal attacks on the current financial system, nor by seeking permissions from regulators and gatekeepers. Rather, change will start to happen by creating a parallel system that will get stronger and grow on its own over time.

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What are the several ways to create this new value in the new cryptospace?

There is a precedent in what already happened in the cyberspace. With the internet, we had e-commerce, e-business, e-services, e-markets. Later, the social web arrived with large-scale social networks, and the mobile web scooped over 3 billion global users. Each one of these segments created its own wealth by existing on the internet.

In the cryptospace, we will see a number of emerging businesses that will run on the blockchains, and they will generate a new source of natively earned wealth:

1) Services where a trust component can be stored on the blockchain. Since the blockchain acts as a verifiable and auditable place where transactions are really difficult to get tampered with, what if you could bind your digital assets to the blockchain, in essence finger printing your ownership (or rights) in irrevocable ways without the need for a central registration authority?

Expect the following foundations to be disrupted: identity, rights, membership, ownership, voting, data ownership, time stamping, and content/services attributions.

2) Services where a contractual component can be executed on the blockchain. Also known as 'smart contracts', a term first popularized by Nick Szabo, these are small programs that can run on a blockchain and self-govern legal or contractual terms between various parties, without the need for intermediaries.

They represent a simple form of decentralized trust. Why depend on a central authority when two (or more) parties can agree between themselves, and bake the terms, compliance and implications of their agreement

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programmatically? Applications areas being targeted include: wagers, family trusts, escrow, time stamping, proofs of work delivery, bounties, proof of bets, proof of compliance.

3) Decentralized peer-to-peer marketplaces. These represent an evolution from what we see today in the most successful marketplaces (ie. Uber, eBay, Amazon), but they actually threaten to replace some of these existing players.

In a decentralized peer-to-peer marketplace, anyone can sell and anyone can buy, while the centre controls less, but facilitates more. Trust, rules, identity, reputation, and payment choices are embedded at the peer level.

Participants arrive already trusted, and 'decentrally' acknowledged. The blockchain acts as the trusted virtual intermediary that checks rules, identity, reputation, payment choices. OpenBazaar (p2p ecommerce) and La'Zooz (p2p ride sharing) are some examples.

4) Distributed Autonomous Organizations (DAO) whose governance and operations run on the blockchain. Arguably, this is the epitome of business decentralisation. A DAO issues its own cryptocurrency, a process called 'crypto equity'.

Members are also 'workers', and by virtue of their collective actions and activity levels, they contribute to increasing value for the DAO. Some examples of user actions could include sharing their computing power or internet access (eg. to create mesh networks), donating data they own, delivering on bounties, and other schemes that are germane to the type of vertical segment being targeted, such as transportation or health care.

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The above four sectors represent 'decentralized applications', an emergent segment of web software development. What they all have in common is that they run on a blockchain, can multiply and grow without central control, and they are fueled by cryptocurrency that powers the transactions and computer power they run on.

The cryptocurrency is like fuel; it's collected in part as toll, in part as earnout by the participating users and those that provide these services. So you can start to see how cryptocurrency is generated out of crypto-services to instigate a new economy of wealth creation.

Once that happens, there will be a critical mass of users with significant cryptocurrency balances in their accounts. Only then, can we attempt to potentially make dents into the current financial system, and in the nation-currency sovereign government paradigm. The reality is that it's very likely that the financial systems and governments will be the last bastions to be affected, and not the first ones.

What the blockchain enables is a new 'flow of value', a concept related to economics Nobel laureate Michael Spence's work on how digital technologies transform global value chains via the dynamics of information flows. The blockchain is another digital value leveller as it impacts and shifts value in the cryptospace.

The blockchain moves the power of transactions closer to the individuals, and it empowers any user to align themselves with a decentralized application or organization, and start generating or moving their own nucleus of crypto value. A side benefit of this phenomenon is to put the sharing economy on steroids, as it melds (crypto) capital and labor with mobile, location-agnostic marketplace environments.

As we prepare to get on-board the crypto economy, undoubtedly it looks fuzzy, foggy, buggy, risky, uncertain and unproven, but so did the internet in 1995. Then suddenly, it blossomed and grew into our lives, businesses,

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and it infiltrated society and culture, with more benefits than vices. We are in the early stages of understanding the movement, distribution and creation of 'value' outside of the traditional norms of currency, commodity and property as the main vehicles for value transfer and appreciation. Soon, this new frontier will appear.

The blockchain symbolizes a shift in power from the centres to the edges of the networks. This is a vision that we may have romanced since the early days of the internet, but it can actually happen this time, because it is powered by an intrinsic monetary value, the internet's own native cryptocurrency.

Existing intermediaries will be at risk. And new intermediaries will be more virtual, transparent, and distributed entities that are trusted programmatically. This crypto economy is decentralized at birth, - politically and architecturally; and it lends equal access and lower barriers of entry to all. Anyone will be able to 'work' for a DAO without permission, and therefore will generate their own wealth.

This crypto economy will transfigure businesses, government and our society, perhaps even more profoundly than the internet did 20 years ago. This crypto economy is the newest phase of the internet, and it will unravel and blossom over the next 10 years. ■

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ABOUT THE AUTHOR

William Mougayar is a globally recognized thought leader and advisor on blockchain strategy, and the best-selling author of The Business Blockchain: Promise, Practice and Application of the Next Internet Technology (Wiley, 2016). He is General Partner at Virtual Capital Ventures, and on the boards of leading blockchain organizations, such as the Ethereum Foundation, the Coin Center, OpenBazaar, and Bloq.

Breaking up big companies and market power concentration

Elizabeth Warren proposes the break-up of big tech companies. A UK report presents another approach for regulating the digital economy. And IMF research shows that concentration of market power extends beyond digital. Konstantinos Efstathiou reviews the debate

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On March 8th, US senator Elizabeth Warren published an essay outlining her proposal to break up the country's big tech companies, specifically naming Amazon, Google and Facebook. These companies, Warren maintains, have amassed excessive power: *"Nearly half of all e-commerce goes through Amazon"*, while *"more than 70% of all Internet traffic goes through sites owned or operated by Google or Facebook."*

What's more, they have used this power to stifle competitors and limit innovation. Warren blames *"weak antitrust enforcement"* for a *"dramatic reduction in competition and innovation"* in the sector, noting that *"the number of tech startups has slumped, there are fewer high-growth young firms typical of the tech industry, and first financing rounds for tech startups have declined 22% since 2012."*

This reduction in competition and innovation, the argument goes, is taking place through two channels: acquiring potential competitors; and competing in a marketplace they own. Hence, the proposal to break-up big tech companies in fact consists of two distinct proposals for separation.

First, to address the conflict of interest, companies that *"offer to the public an online marketplace, an exchange, or a platform for connecting third parties"* and generate annual global revenue above $25 billion would have to choose between owning the 'Platform Utility' or participating in it[1].

Second, to re-establish a competitive landscape, Warren would appoint regulators tasked with reversing anti-competitive mergers using existing antitrust laws. She explicitly mentions the following mergers: Amazon with Whole Foods and Zappos; Facebook with Whatsapp and Instagram; Google with Waze, Nest and DoubleClick.

"America has a long tradition of breaking up companies when they have become too big and dominant", says Warren. She recalls that when, in the 1990s, Microsoft *"was trying to parlay its dominance in computer operating systems into*

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dominance in the new area of web browsing", the government brought an antitrust case against it that *"helped clear a path for internet companies like Google and Facebook to emerge"* in the first place.

Warren is not alone in evoking examples from US antirust history to argue her position. Tyler Cowen, however, finds more similarities to an antitrust case brought against IBM in 1969 and takes the opposite view. The US government tried to break up the company when it *"controlled nearly 70 per cent"* of the computing-for-businesses market. *"The suit ran on for 13 years, costing IBM and the government alike millions of dollars, not to mention the attention of IBM*

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... regulation of big tech goes beyond competition and innovation, and touches on politics, both domestic and international

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innovators," writes Cowen. He adds that *"the antitrust case arguably made IBM less able to identify the market shift toward personal computers"* and contributed to a collapse of IBM's market share and record losses.

In Cowen's opinion, major tech companies have been very effective innovators, and the proposed break-up could similarly distract and weaken them, thus ultimately hurting innovation. In fact, Cowen credits big tech companies for what others often accuse them: rather than using acquisitions to eliminate potentially threatening competitors, they have enabled the rise of their acquisitions through their vast means. He cites Alphabet's (Google's parent company) acquisition of YouTube and Android, and subsequent investment in and upgrade of their content and services, as prime examples of that.

Cowen also challenges the idea that big tech companies form true monopolies. In the social network space, Facebook still competes with a large numbers of alternatives, digital or not, and adds that *"it's easy to imagine Facebook becoming less of a major player with time."* In advertising, Google and Facebook may be leaders in the space but are still competing against each other, as well as other conventional players (eg. television).

Cowen also argues that when it comes to advertising, Google *"is fundamentally a price-lowering institution for small and niche businesses that can now afford more reach for less than ever before,"* which actually enables competition in other sectors. Therefore, although he is not *"suggesting that all is well in the online world, and some critics make entirely valid points", "vigorous antitrust response hasty and harmful."*

By contrast, Kenneth Rogoff sides with Warren and remarks that *"the debate about how to regulate the sector is eerily reminiscent of the debate over financial regulation in the early 2000s."* Much like in finance then, supporters of a light regulatory touch cite the tech sector's complexity to justify it, powerful companies can afford very high salaries that attract talent away from regulatory bodies, and the role of US regulators is 'outsize'.

Thus, although *"ideas for regulating Big Tech are just sketches, and of course more serious analysis is warranted"*, Rogoff *"could not agree more that something needs to done, especially when it comes to Big Tech's ability to buy out potential competitors and use their platform dominance to move into other lines of business."*

Published only five days after Warren's essay, the *Report of the Digital Competition Expert Panel* is yet another proposal for what should be done. *The Economist* summarises this report, prepared for the British government by a team led by Jason Furman, former chief economist to US President Obama. The report's authors argue that concentration is intrinsic to the digital economy because of network effects, and that sustained dominance can lead to higher prices, less choice and innovation.

However, they reject the breaking-up of digital companies or regulating them with capped profits and tight supervision, like water or power utilities. Instead, the report suggests that government action should focus on stimulating competition and choice.

One such action is introducing a code of conduct on competitive behaviour on big platforms, echoing another element of the Warren proposal. This code of conduct would, *"for example, prevent an online marketplace such as Amazon from favouring its own products over those of a rival in a search result shown to a consumer."*

Another measure is 'data mobility', which would reduce switching costs. With data mobility *"individual customers could move their search and purchasing histories from one platform to another. Social-media users could post their messages to friends, regardless of the networking site those friends use. And anonymised bulk data gathered by one firm would be made available to new entrants with safeguards for privacy."*

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The article describes the report as *"balanced"* and *"first rate"*, but also offers some scepticism. It wonders how 'data mobility' will work in practice. It also questions the impact the report could have. To quote, *"even if Britain were to adopt its recommendations, the tech titans are global in scope and American by nationality. Ultimately America and the EU (which Britain is due to leave soon) are the powers that will decide their destiny."*

This line hints at the bigger picture: regulation of big tech goes beyond competition and innovation, and touches on politics, both domestic and international. In tabling her proposal Warren aims, among other things, to *"restore the balance of power in our democracy"* by ensuring the privacy of users' data and reducing the leverage companies have in demanding *"massive taxpayer handouts in exchange for doing business"* vis-à-vis local administrations.

For the tech sector, Ken Rogoff thinks *"it is a problem that cannot be overcome without addressing fundamental questions about the role of the state, privacy, and how US firms can compete globally against China, where the government is using domestic tech companies to collect data on its citizens at an exponential pace."*

More generally, Joseph Stiglitz remarks that *"as corporate behemoths' market power has increased, so, too, has their ability to influence America's money-driven politics."* Since *"the challenge, as always, is political"*, Stiglitz expresses doubt that *"the American political system is up to the task of reform"* and believes that *"it is clear that Europe will have to take the lead."*

In one of its briefings *The Economist* goes even further, arguing that *"if you want to understand where the world's most powerful industry is heading, look not to Washington and California, but to Brussels and Berlin."* Not only is the EU more likely to be more objective owing to its lack of big tech firms; it is also where Alphabet, Amazon, Apple, Facebook and Microsoft have a quarter of sales and the world's biggest economic block, meaning that its standards are often copied in the emerging world.

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What's more, the EU has what the article calls *"a distinct tech doctrine"* which, similarly to the approach of the *Report of the Digital Competition Expert Panel*, rejects break-ups and utilities-style regulation and is rather based on equal treatment for rivals who use a platform and individuals' sovereignty over their data. On the latter, the EU's General Data Protection Regulation (GDPR) is to be followed by allowing interoperability, and thus customer switching, between digital service providers.

However, rising concentration is a problem that extends beyond the digital economy according to Federico Díez and Romain Duval of the IMF. Looking at product's price to cost ratio, or markup, for nearly 1 million companies from 27 advanced and emerging-market economies, they conclude that from 2000 to 2015 it increased on average by 6%.

The increase is more pronounced in advanced economies and outside the manufacturing sector, including of course the digital economy. Importantly, the bulk of the increase in markups has come from those companies that had the highest markups to begin with. This top 10% of companies are more profitable, more productive and use more intangible assets than the rest.

Díez and Duval argue that the rising power of the most productive and innovative companies has been helped by their superior ability to exploit proprietory intangible assets, network effects, and economies of scale, creating a *"winner-takes-most"* dynamic.

The authors write that this rise in market power has had non-negligible effects in reducing investment and the labour share in income. *"If markups had remained at their 2000 levels, the stock of capital goods today would be on average about 3 percent higher and GDP about 1 percent higher."* Furthermore, *"increased market power since 2000*

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has also accounted for at least 10 percent of the overall decline (0.2 out of 2 percentage points) in the share of national income paid to workers in advanced economies."

But above all, Díez and Duval identify weaker incentives for innovation and the potential attempt of market-dominant companies to erect barriers to entry as reasons for policymakers to be vigilant for the future. To be sure, they propose a diversified policy toolkit: lower domestic barriers to entry, lower barriers to trade and foreign direct investment in services, stronger competition law and policies, corporate tax reform and intellectual property rights that *"encourage groundbreaking innovations more than incremental ones."* ■

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Endnotes

1. Companies would also need to meet a standard of "fair, reasonable, and nondiscriminatory dealing with users" and not allowed to transfer or share data with third parties. Platforms with lower revenue would also be required to meet this standard.

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Sound at last? Assessing a decade of financial regulation

Bolton et al argue that despite clear improvements in financial regulation and supervision since the global financial crisis, there is still work to do in several crucial areas and political constraints may bite

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While the decade since the Global Crisis has seen clear improvements in financial regulation and supervision, there is still work to be done in several crucial areas, and political constraints may bite. This column introduces the first report in a new series on *The Future of Banking*, which tackles three important areas of post-crisis regulatory reform: the Basel III agreement on capital, liquidity and leverage requirements; resolution procedures to end 'too big to fail'; and the expanded role of central banks with a financial stability remit.

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What has changed since the 2007-2009 crisis to ensure that the financial system is sound at last? Is regulatory reform going in the right direction? Has it run its course?

One major challenge for regulatory reform is to gather the necessary political support to move it forward. Regulators need to have enough powers to deal with major crises. However, the unpopularity of measures for dealing with crises has led several jurisdictions to curtail the power of regulators to respond, with the aim of 'ending bailouts forever'.

For example, Ben Bernanke, Timothy Geithner, and Henry Paulson (the latter two both former US Treasury secretaries) stated in September 2018 that *"… in its post-crisis reforms, Congress also took away some of the most powerful tools used by the FDIC [Federal Deposit Insurance Corporation], the Fed and the Treasury. Among these changes, the FDIC can no longer issue blanket guarantees of bank debt as it did in the crisis, the Fed's emergency lending powers have been constrained, and the Treasury would not be able to repeat its guarantee of the money market funds. These powers were critical in stopping the 2008 panic"* (Bernanke *et al*. 2018).

In the euro area, political constraints are delaying the completion of the Banking Union, including a common deposit insurance scheme and a backstop for the banking system. There is a danger that the unrealistic

commitment not to use public money, even in the face of a macroeconomic shock, will undermine current EU resolution procedures, as was the case with the recent treatment of certain banks in Italy.

In the first report in a new series on *The Future of Banking* from the IESE Business School and the CEPR, we argue that while there have been clear improvements in financial regulation and supervision over the decade since the global financial crisis, there is still work to do in several crucial areas and political constraints may bite (Bolton *et al*. 2019).

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We do not know where the next crisis will hit. But if the past is any predictor of the future, we can be sure that entities that perform the functions of banks, but are outside the regulatory perimeter, will play an important role

The report, titled *Sound at Last? Assessing a Decade of Financial Regulation*, tackles three important areas of post-crisis regulatory reform: the Basel III agreement on capital, liquidity and leverage requirements; resolution procedures to end 'too big to fail'; and the expanded role of central banks with a financial stability remit.

A legacy of the crisis is stronger and better capitalised banks, as well as regulators and supervisors with increased clout who pay more attention to systemic risk. However, the crisis has also left us with high leverage in advanced economies, especially in terms of sovereign debt-to-GDP ratios. At the same time, interest rates are at very low levels. All of this, together with the digital disruption of the sector, poses formidable challenges for the banking industry.

A first broad message of the report is that *narrow banking* is not a magic bullet to overcome the fragility of the system. The narrow bank 'solution' always emerges after a systemic crisis, and the 2007-2009 crisis was no exception. Fragility is inherent to the core banking function of joint supply of credit and deposits. If narrow banking were to be implemented, fragility would resurface elsewhere in the financial system.

A second broad message is that prudential regulation should take a holistic approach, considering and setting requirements for capital, liquidity and disclosure together and taking into account their potential interactions, together with the competitive conditions of the industry.

More specifically, we find that there is room to fine-tune regulation:

- We do not know whether current levels of capital are enough, but we believe it is better to err on the high side (as long as increased capital requirements are not imposed when the economy is weak). The interaction

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between leverage and risk-weighted capital must be explored so that no perverse incentives are introduced inadvertently.

- The introduction of liquidity regulation is an important innovation, but we question the need for two requirements. We believe that authorities should explore modifications to the liquidity coverage ratio that would make the net stable funding ratio unnecessary[1].

- Stress tests are very useful if well designed. A main lesson from the euro area is that effective stress tests can only be implemented when there is a backstop for the banking system. To remain effective, the tests must be severe, flexible, and not overly transparent. Current practice could be improved by taking into account second-round effects.

- Regulation inevitably leads to innovation aimed at escaping the new rigorous oversight. To ensure that an ever-changing financial system remains resilient, authorities need a framework to monitor, assess, designate, regulate and supervise entities outside the perimeter of regulation. As of today, there is still no framework for dealing with shadow banking and new digital competitors.

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A second broad message is that the new resolution framework constitutes a major institutional advance in resolving systemically important institutions. However, a public backstop is needed even under the most refined resolution procedures. The too-big-to fail (TBTF) problem has been alleviated (with the caveat on the effect of new regulations on concentration and size of banks), but it has not gone away.

Indeed, new regulations and high compliance costs make entry difficult and have increased the tendency for concentration, potentially aggravating the TBTF problem[2]. In addition:

- Resolution needs liquidity support but current procedures are lacking, particularly in the euro area.

- Better resolution provides good incentives for managers and allows for more competition in the market.

- There are complex trade-offs in the choice between a single point of entry (SPOE) model and a multiple point of entry model (MPOE) model. For the resolution system to be stable, the incentives of national authorities before and during a crisis must be contemplated (for example, national authorities may decide to ring-fence capital and liquidity ex ante, or refuse to abide by an agreement when it turns out to be unfavourable). The theoretically superior SPOE model may face formidable implementation challenges and turn into MPOE in practice (Bolton and Oehmke forthcoming).

A third broad message is that the central bank has to recover its traditional financial stability remit, and this more powerful central bank needs strengthened accountability and democratic legitimacy. We contribute to the debate over the functions of central banks and the regulatory financial architecture. More specifically:

- The central bank should be prepared to use its balance sheet as a financial stability tool, although what the steady-state size of the balance sheet should be is an open question.

- We look favourably on the idea that central bank liquidity insurance should be priced, but we are wary of potential adverse consequences on credit provision to the economy when collateral is lacking.

- With respect to the financial supervisory architecture, we favour an expanded role for central banks encompassing financial stability. Under an integration ('one roof') view of the central bank functions (as in the

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UK), the central bank has both a price stability and a financial stability mandate, and consequently it should have a transparent lender-of-last-resort function as well as macroprudential authority with appropriate tools[3].

Microprudential supervision should be well coordinated with, or even integrated into, the central bank and an independent authority should take care of conduct and consumer protection, yielding a 'twin peaks' regulatory architecture. At the other extreme, under a 'many roofs' regulatory financial architecture, the central bank cares only about price stability, and both macroprudential and microprudential supervision are run by separate independent institutions. Our view is closer to the former model than the latter.

- To insure the legitimacy of delegating increasingly broad powers to an independent institution, and to preserve central bank independence, the framework and the principles of communication for the case of monetary policy should be applied to the decisions of the single institution or of the collective in charge of financial stability.

- More intensive coordination between monetary and fiscal authorities is needed, particularly when the zero lower bound is reached. A regular exchange among authorities on policy options should then be encouraged, including public communication of policy choices and the trade-offs involved.

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We do not know where the next crisis will hit. But if the past is any predictor of the future, we can be sure that entities that perform the functions of banks, but are outside the regulatory perimeter, will play an important role.

Furthermore, the next global crisis may have its origins in an emerging market, where regulation may well be different from the structure adopted in advanced countries.

A challenge for incumbent banks will be to adapt to the digital disruption and more competitive environment, while regulators will have to maintain a level playing field, protecting financial stability while allowing the benefits of innovation to permeate the system. ■

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Endnotes

1. See Vives (2014) and Cecchetti and Kayshyap (2018) for further analysis on this point.

2. See Vives (2016) for a full analysis on the interaction of competition and regulation in banking.

3. See Danthine (2015) on the Swiss experience.

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Download the new report, Sound at Last? Assessing a Decade of Financial Regulation, here. This article was originally published on VoxEU.org

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Deceptive Canadian climate report in context

Tim Ball and Tom Harris consider the misleading climate change report, and argue that the global warming scare must be killed before the credibility of science is gone

It is appropriate that a climate change story from Canada misled the world on April Fool's Day. The April 1, 2019 Toronto-based *Globe and Mail* headline read, *"Report on climate change shows Canada warming at twice the rate of the rest of the world."* The government-funded Canadian Broadcast Corporation headlined their coverage, *"Canada warming at twice the global rate, leaked report finds."*

And so it was across mainstream media. CNN, the UK-based *Guardian* newspaper and others blared, *"Canada is warming at twice the global rate, report says."* A Google search for that phrase yielded over 14,000 hits across the world. Propagandists working in Environment and Climate Change Canada (ECCC) must be proud.

Canada's Changing Climate Report (CCCR2019, the full report is available here) is written almost entirely by Canadian government scientists. In fact, of the 42 authors, only 5 do not work directly for the federal government, and 26 of them work for ECCC. So, naturally they support the government's climate change stance. CCCR2019 asserts that our country is warming twice as fast as the rest of the world and Northern Canada nearly three times as fast. That is ridiculous, of course. There is only one weather sensing station for the entire Arctic Archipelago and Arctic Islands so ECCC actually has no idea what climate change is occurring in that region.

That such a flawed report would originate in Canada is appropriate since it was a Canadian, billionaire businessman and former UN Under-Secretary-General, the late Maurice Strong, who almost single-handedly put the anthropogenic global warming (AGW) hypothesis, the biggest deception in history, on to the world stage in the first place. You can read about how he achieved this in my (Dr Ball's) book *Human Caused Global Warming: The Biggest Deception in History*. He set up the entire ruse, the largest fake news story ever, using the deep state, in this case, the weather bureaucrats at the World Meteorological Organization (WMO).

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CCCR-2019 does what all government climate research has done since Strong took over through the UN and created the story for a political agenda. It assumes, wrongly, that temperature is the primary issue in climate change (drought is the single biggest negative weather event followed by floods). It also assumes that warming is dangerous.

Why is warming bad, especially in a country like Canada? What the UN has done since the start is to carry out a cost/benefit analysis but only considered the cost. History shows clearly that warming has been good for humanity and the environment. Cooling is our real enemy, especially in higher latitude countries like Canada. A study in British medical journal *The Lancet* reached the following conclusion:

> *"Cold weather kills 20 times as many people as hot weather, according to an international study analyzing over 74 million deaths in 384 locations across 13 countries."*

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The global warming scare must be killed before the credibility of science is gone

The WMO is made up of bureaucrats from the national weather offices of each UN member nation, including ECCC. They appoint the members of the UN Intergovernmental Panel on Climate Change (IPCC) that under Strong's control, manufactured the entire AGW story. Canada has been a prominent member of the IPCC since its inception and indeed, ECCC, then called Environment Canada, was a founding member of the IPCC.

That so many of the authors of CCCR2019 are ECCC civil servants is a red flag. Take Marjorie Shepherd, director of the climate research division at ECCC, for example. She is a scientist bureaucrat working for an agency that long ago convinced their political masters that the AGW hypothesis was confirmed and must drive public policy on energy and environment. It's no surprise then that Shephard would be promoting the unproven hypothesis of AGW. It is beyond a conflict of interest because ECCC scientists cannot now tell politicians that the hypothesis is wrong.

The *Globe and Mail* reported that:

> *"Shepherd… said that warming is not uniform and some regions are warming more than others, and that on average, since records became available in 1948, temperatures in Canada have increased by 1.7 degrees. Annual average temperature over Northern Canada increased by 2.3 C since 1948."*

This statement underscores why you should not draw conclusions with inadequate data. However, that doesn't stop Shepherd from manipulating the data to support her department's political position. Why are some regions warming more than others? What is the range of difference? Doesn't that make the impact of warming less problematic overall? If there is warming in some areas and not others, what was the location and length of record in the stations you chose? How does she define Northern Canada? The reality is the number of stations in Canada's Arctic (there are none for the entire Arctic Ocean) is inadequate to draw any conclusions.

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And of course, the biggest deception in climate research is cherry-picking the start and ending date of your study. You can pick any segment to prove warming or cooling. In this case, the start date of 1948 did not need to be cherry-picked because it was when the record began and was a cool period. The global temperature began declining in 1940 and continued to decline until 1980. In other words, the record Shepherd used began at the nadir of global temperature cooling, so warming since then is normal, not surprising and not due to human activity. Nevertheless, Shepherd says,

> *"While both human activities and actual variations in climate contribute to this observed warming in Canada, the human factor is dominant."*

There is absolutely no way to substantiate that statement. Which stations did she choose? How many of them were affected by the Urban Heat Island Effect, the well-known phenomenon of local warming due to urban development? At the beginning of the 1990s, a decision was taken to reduce the number of stations used to calculate every nation's monthly and annual average temperatures. Diamonds identify the ones chosen for Canada in Figure 1. This artificially increased temperatures and that accounts for Shepherd's 1.7 and 2.3°C increases.

Notice that Eureka is the only station for the entire Arctic Archipelago and Arctic Islands. They chose it deliberately because it was a well-known warm anomaly in the Arctic. It accounts for most of the Arctic warming in the Canadian sector.

One of the reasons for Shepherd's mistakes is that she relies on the IPCC for her climate information. The IPCC combines the forecasts of some 102 computer models from different countries to produce an average result. Ironically, while they have all been wrong since they began in 1990, the Canadian model has produced the worst results, as Gregory showed (Figure 2).

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Figure 1. Canadian weather stations

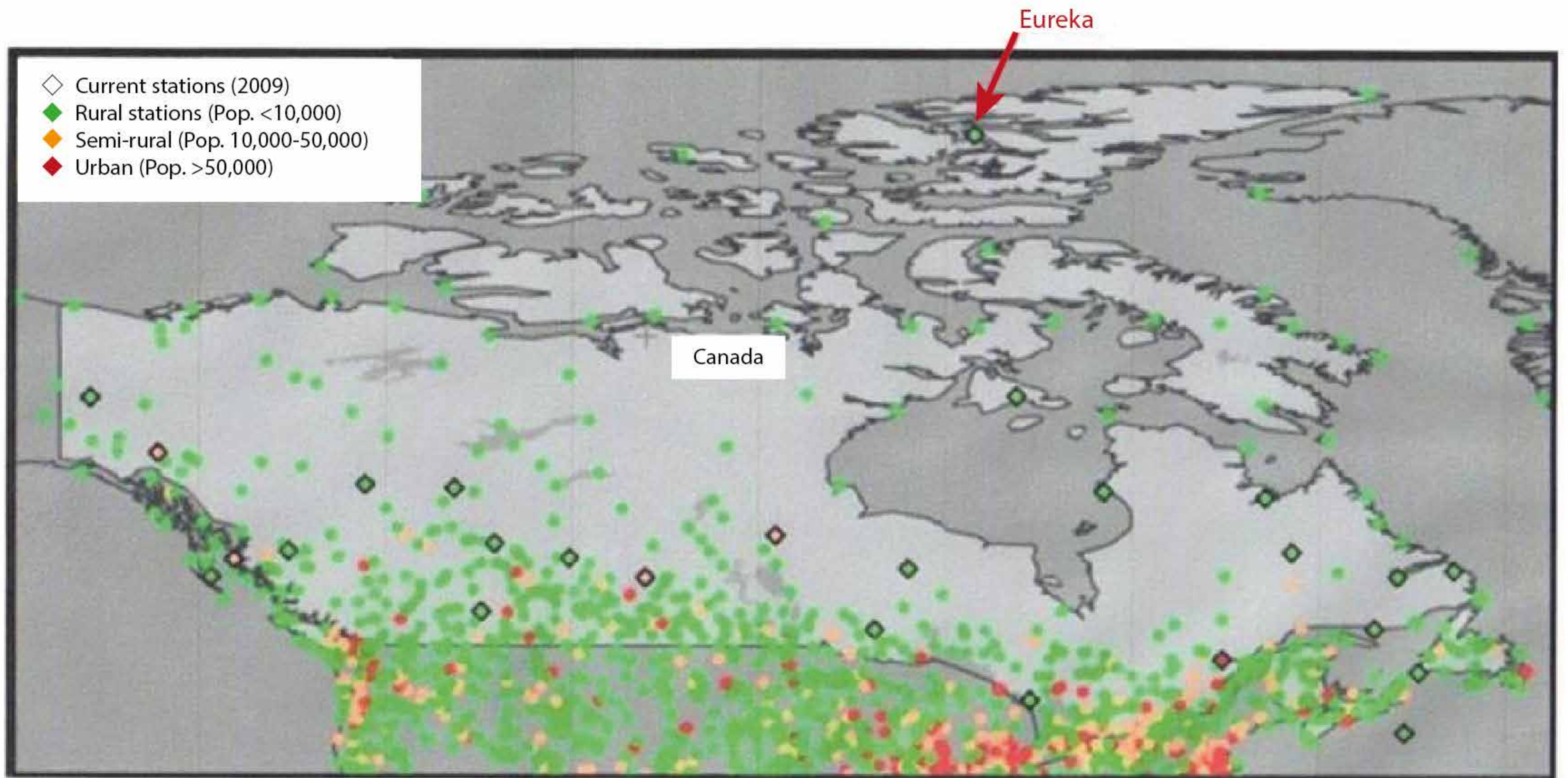

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Figure 2. Canadian climate model CanESM

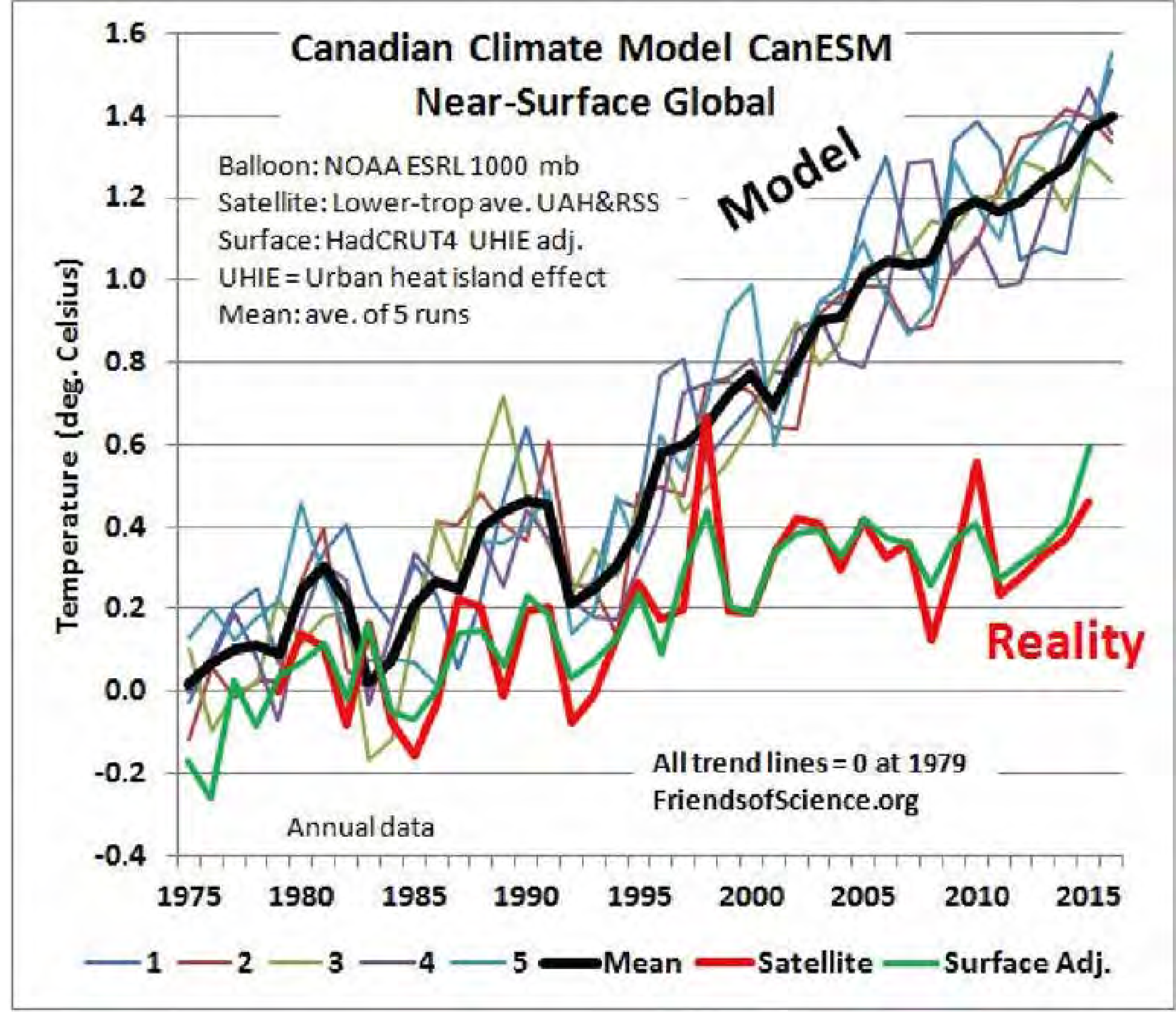

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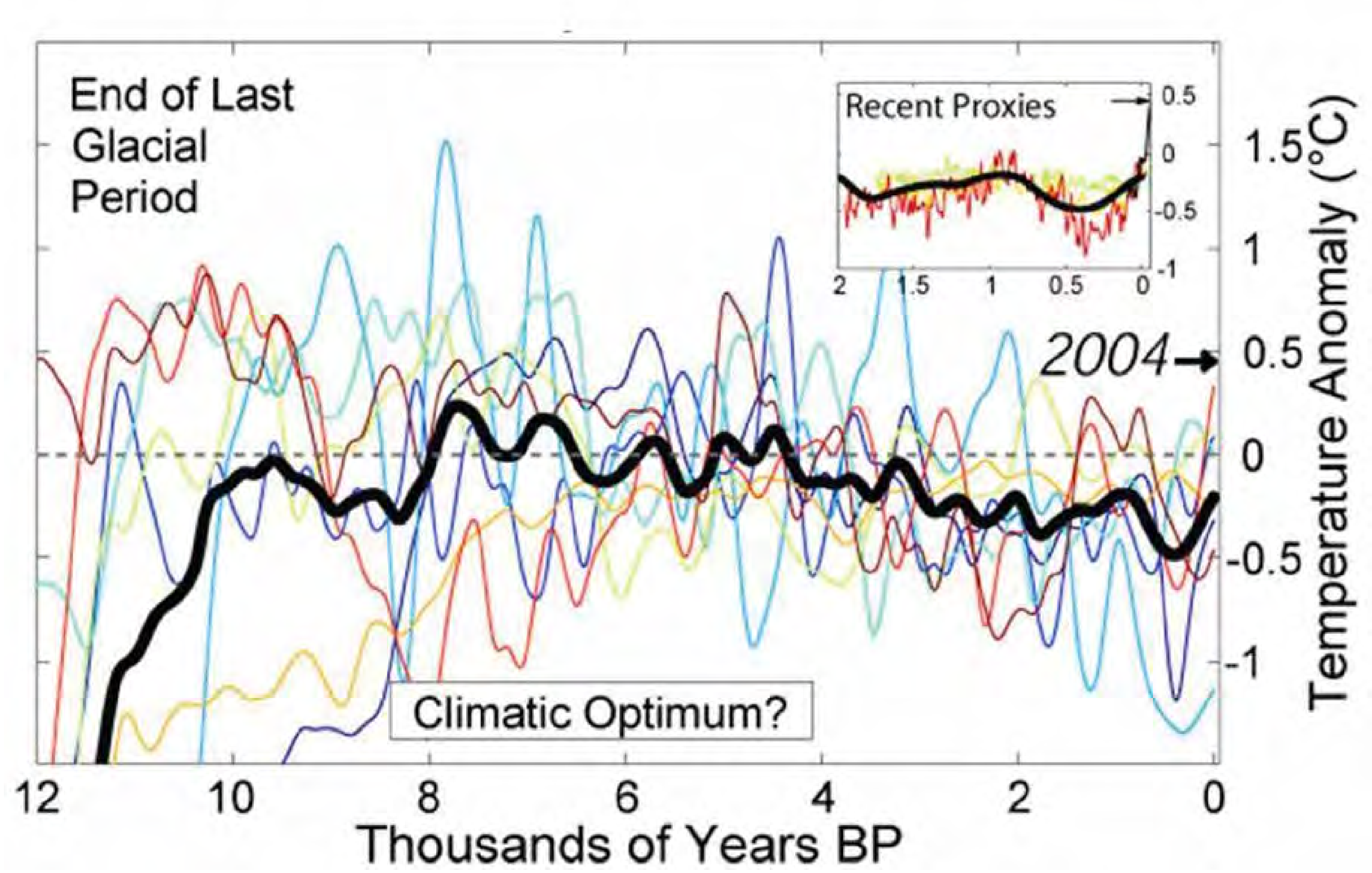
Figure 3. Holocene temperature variations



Despite Shepherd's claim, there was no significant warming in the last 40 years. Global temperatures began levelling off after 1998 and continue stable to this day, although that is of little consequence since it is such a short time interval. When you put the CCCR2019 study in an historical context, it is seen to be insignificant (Figure 3) since it was warmer than today for at least 90% of the last 10,000 years. This graph also shows that there is nothing remarkable about today's rate of change.

Finally, why would anyone want to leak a set of temperature records (CCCR2019 was not scheduled to be released until April 2)? It was obviously to attract media attention with the implication that there is something nefarious going on. This is now such a standard device used to influence and deceive that it should immediately raise awareness of a deception. That CCCR2019 was 'leaked' on exactly the same day as the start of the federal government's expensive and unnecessary 'carbon tax' shows that it was yet another example of government bureaucrats controlling the agenda and pushing their policy on climate change.

CCCR2019 asserts:

> *"Canada's climate has warmed and will warm further in the future, driven by human influence. Global emissions of carbon dioxide from human activity will largely determine how much warming Canada and the world will experience in the future, and this warming is effectively irreversible. Both past and future warming in Canada is, on average, about double the magnitude of global warming. Northern Canada has warmed and will continue to warm at more than double the global rate…Extreme hot temperatures will become more frequent and more intense."*

The public needs to know that CCCR2019 was commissioned by an agency (ECCC) that has been wrong on every long-term (climate) forecast they have made since at least 1990. Their forecast for the winter of 2018/19 was

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particularly flawed. In September 2018, Environment Canada predicted a mild winter for 2018/2019. Environment Canada Senior Climatologist David Phillips said, it would be a *"milder than normal winter."* The agency wasn't just wrong, it was 100% wrong. This winter has been one of the worst on record.

ECCC weather forecast accuracy has not improved, despite millions of dollars spent on computers, satellite data, and Doppler radar. The only claims that they are improved are those the agency produces.

Most independent polls show that climate change is not a serious public concern. One of the reasons for this is that people can see that there is no warming despite Shepherd's false claims. The global warming scare must be killed before the credibility of science is gone. ■

Dr Tim Ball is an environmental consultant and former climatology professor at the University of Winnipeg. Tom Harris is executive director of the Ottawa, Canada-based International Climate Science Coalition

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Conventions in 2019 showcase business aviation's exciting future

The business aviation industry is embracing future technologies. Ed Bolen finds that this forward-looking spirit is embodied in NBAA-sponsored events

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Business aviation continues to evolve before our eyes, as the industry embraces new technologies and looks to the exciting possibilities in its future. This forward-looking spirit is seen throughout an impressive roster of international events sponsored by the National Business Aviation Association (NBAA) including the recently concluded European Business Aviation Convention & Exhibition (EBACE) in Geneva.

Co-hosted by the European Business Aviation Association (EBAA) and NBAA, the 2019 edition of EBACE built upon its status as Europe's premier business aviation event with a show floor spanning three halls at Palexpo, featuring nearly 400 exhibitors, including 10 new to EBACE that were prominently located in the shows New Exhibitor Pavilion.

The packed halls were continuously filled with attendees representing more than 80 countries, who came to Geneva to network with their peers and learn about the latest issues and developments affecting business aviation across Europe and around the globe.

EBACE2019 also showcased a roster of future technologies, perhaps most notably sustainable flight and urban air mobility. The first-ever EBACE Innovation Pavilion featured three distinctive electric vertical takeoff and landing (eVTOL) aircraft and concepts, while the adjacent Innovation Zone hosted a panel presentation on eVTOL and the urban air mobility revolution.

The EBACE Opening Keynote Session also looked to the industry's future with Volocopter CEO Florian Reuter, who described his company's eVTOL air taxi as *"the perfect complement and addition to business aviation."* Fellow keynote speaker Grant Shapps, UK Member of Parliament, called business aviation *"essential"* and predicted that EBACE, *"will be here in another decade's time with this exhibition bigger and more important than ever."*

EBACE among events highlighting innovation on 3 continents

While EBACE provided a clear look at the future of business aviation, it's important to note that innovation has long been a hallmark of other NBAA-sponsored events, including the annual Asian Business Aviation Conference & Exhibition (ABACE) and the association's own Business Aviation Convention & Exhibition (NBAA-BACE.) Consider ABACE2019, held earlier this year in Shanghai, and jointly hosted by the NBAA and the Shanghai Airport Authority

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Widely regarded as the most important three days of business aviation, NBAA-BACE will bring together current and prospective aircraft owners, manufacturers and customers into one meeting place to get critical work accomplished, all while once again displaying the innovative spirit of this forward-looking global industry

(SAA) and coordinated with the Asian Business Aviation Association (AsBAA). ABACE featured keynote addresses that examined the emerging role of eVTOL, as well as several urban air mobility vehicle concepts from companies across the region.

This technology also played an important part at last year's NBAA-BACE in Orlando, FL with two keynote addresses headlined by visionaries pioneering the future of business aviation.

Uber Elevate CEO Eric Allison shared the company's plans for fostering urban mobility, while Solar Impulse Chair Bertrand Piccard told his story of flying around the world without a drop of fuel. These presentations took place amidst a first-time immersive experience with the 2018 Collier Award-winning Cirrus Vision Jet on display, as well as an experimental flying car from Terrafugia.

EBACE continued this tradition of putting innovation at center stage, in part by promoting environmental sustainability and reducing business aviation's carbon footprint. For example, of the 58 aircraft at the EBACE2019 Static Display, 23 arrived at Geneva powered by sustainable alternative jet fuel (SAJF) as part of the inaugural EBACE SAJF 'fly-in'.

This milestone built upon the launch of the *Business Aviation Guide to the Use of Sustainable Alternative Jet Fuel (SAJF)* at last year's EBACE, which demonstrated the industry's support for development and adoption of the fuel. In another sign of the importance of SAJF, an industry-wide 'Fueling the Future' demonstration day was held at London TAG Farnborough Airport immediately before the opening of EBACE2019.

It's also clear that business aviation faces an ongoing challenge in attracting the next generation of industry professionals, which is why every NBAA-sponsored event includes a dedicated Careers in Business Aviation Day

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for area high school and college students who wish to learn about the industry and explore potential career opportunities.

A valued platform for product introductions, other news

Of course, EBACE2019 and other NBAA-sponsored industry events not only look to the industry's future. They also highlight the most exciting and innovative aircraft, products and services available today, making these events truly 'can't miss' opportunities where companies may introduce their latest offerings before an international audience.

The EBACE2019 static display included several 'firsts' among aircraft manufacturers: Bombardier's Global 7500 made its post-certification debut at EBACE, and Embraer displayed the new Praetor 600 aircraft for the first time since being certified in Europe, the US and Brazil. These aircraft were joined by the latest versions of such exciting aircraft as the Gulfstream G600, Airbus ACJ319 and Cirrus SF50 Vision G2.

Earlier this year, ABACE2019 hosted several major aircraft announcements, including the first international appearance of Bombardier's Global 7500 and the introduction of the new CBJ business jet from The Commercial Aircraft Corporation of China. Last year, NBAA-BACE featured the unveiling of Embraer's Praetor 500 and 600 business jets, as well as the debut of an advanced electric-hybrid propulsion system for eVTOL aircraft from Honeywell.

Taking place October 22-24 in Las Vegas, NV, the 2019 edition of NBAA-BACE will once again showcase an extensive array of emerging, next-generation technologies and key new product introductions, as well as presentations and discussions about the latest developments and challenges facing the industry worldwide.

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Widely regarded as the most important three days of business aviation, NBAA-BACE will bring together current and prospective aircraft owners, manufacturers and customers into one meeting place to get critical work accomplished, all while once again displaying the innovative spirit of this forward-looking global industry.

These events all serve as important opportunities to witness the next stage of business aviation's ongoing evolution. I encourage readers of *World Commerce Review* to attend future editions of ABACE and EBACE, and join the estimated 25,000 industry professionals who will attend NBAA-BACE later this year, to witness firsthand the many ways our industry continues to embrace new ideas, technologies and the promise of an and exciting future. ■

Ed Bolen is President and CEO the National Business Aviation Association (NBAA)

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The Malta Business Aviation Association (MBAA) aims to promote excellence and professionalism amongst our Members to enable them to deliver best-in-class safety and operational efficiency, whilst representing their interests at all levels in Malta and consequently Europe. The MBAA will strive to ensure recognition of business aviation as a vital part of the aviation infrastructure and the Maltese economy.

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The legal sector is primed for disruption from AI. Here's why…

Nikolas Kairinos outlines a few key snippets of wisdom to help legal organisations and professionals leverage AI to help them do more, do it better, and do it at a lower cost

It's hard to think of a professional industry today that does not stand to benefit from AI. From finance to healthcare and even property, business leaders and savvy entrepreneurs are jumping at the chance to capitalise on AI toolsets to improve their organisation as a whole.

Yet, of all the sectors primed to benefit from AI, the legal industry certainly hasn't been a frontrunner when it comes to AI adoption. To illustrate the point, RELX Group conducted a survey of senior executives in the US and placed the legal industry in last place when it came to the adoption of AI and machine learning (ML) technologies.

Is a lack of deep-level understanding about AI hindering progress in the legal space? This is a question that we have grappled with here at Fountech, and has inspired the creation of our new and timely legal white paper, exploring the practical applications of AI within legal firms. By explaining just how this technology can drive progress and efficiency, the paper aims to arm legal professionals with the knowledge to take advantage of AI.

Below I've outlined a few key snippets of wisdom that I hope will help legal organisations and professionals leverage AI to help them do more, do it better, and do it at a lower cost.

A brief history of AI

Before we jump into the practical applications of AI toolsets, let's first cast a glance over the history of AI. After all, the industry is far older than people might think, and it has come a long way since its inception.

While AI might seem like a 21st century trend, the concept was in fact debuted more than 60 years ago in 1956 at a conference in Dartmouth University. But it is only in the last decade that AI has truly taken off and achieved landmark goals with the support of private and public funding.

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Today, AI is being harnessed to create real world business value solutions, and we have witnessed a significant uptake of this technology across many different professional environments. Gartner recently revealed that enterprise use of AI grew 270% over the past four years, with over a third (37%) of organisations having implemented AI in some form or another.

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If utilised effectively, AI can become an indispensable assistant to practically every legal professional, and ultimately help firms deliver better, faster and more cost-efficient legal services

The reasons for this are wide-ranging, but largely boil down to the fact that AI is becoming increasingly more accessible, and people generally have a deeper understanding of this technology and what it can be used for. I have no doubt that the speed of its proliferation across the business world will ramp up as new solutions become available for everyday use.

Having briefly considered the current state of AI in the business world as a whole, how do these trends translate into the legal space?

We've only just scratched the surface of AI in law; indeed, AI is only just beginning to come into its own in terms of its use by lawyers and legal firms. Research by the Legal Practice Management in 2018 found that 73% of law firms in the UK were still not using AI in any way – a statistic that needs to improve if firms hope to stay ahead of the curve and remain competitive.

At this point, many might be wondering what kind of solutions are out there, and how they can be used. While AI may not be a magic bullet for solving all business inefficiencies, it's certainly a good place to start. So here are a few examples of how law firms can streamline their day-to-day operations through AI toolsets…

Shifting the document burden

One of the key attributes of AI is that it can be taught how to complete tasks traditionally managed by people, particularly where the main focus is looking for patterns in data, testing the data, and finding or providing results.

This functionality can aid in all manner of different responsibilities, but let's consider how it can be utilised to lessen the burden of document drafting and management – a task I dare say fills few legal professionals with excitement.

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Needless amounts of time and effort is expended by lawyers on a daily basis as they sift through paperwork and legal documents, locating necessary information, and analysing the content in order to inform a contract or decision. Why not automate this process?

After all, it's hardly a competition; AI can scan and review swathes of data at an infinitely faster rate than any human can. To offer a practical example, let's imagine that a lawyer is trying to locate and compile a list of all of the cases of a certain description that occurred at a specific time and place.

Instead of doing this manually, he or she might instead enlist the help of an AI-powered 'smart search' solution. By asking the software a question they are seeking the answer to – in this case, it might be, *"what are all the cases of whiplash car injuries that occurred in London 2017?"* – the AI can sift through digital data stores to find documents containing relevant matches.

Whereas traditional search engines would simply scan for keywords in this instance, they lack a more sophisticated function which stems from ML capabilities. At the crux of it, ML capabilities ensure that AI tools are constantly positioned to reactively learn and improve. Based on feedback from the legal professional, it can learn to refine results over time to ensure that they only revert the most relevant information.

It doesn't stop here, however. AI can even be employed to help draft professional documents. Instead of hand-crafting each contract or agreement from scratch, lawyers can simply specify what points or arguments they would like to raise in the document and leave the AI to generate legally-sound paragraphs based on previous examples. Not only does this free up countless hours of a professional's time, it also means that they're able to direct their energy towards more valuable and higher-level assignments.

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Predicting the outcome of cases

This might sound like a distant reality, but the fact is that AI already has the ability to predict the outcome of cases by analysing historic data and the particulars of each individual case – in effect, offering firms a form of risk-analysis. Once again, this is down to the ability of AI algorithms to spot patterns in the data, which is then used to plot possible future trends and determine the likely consequences of different scenarios.

How does this work in practice? Let's say that a firm has taken on a personal injury case, but is unsure about the likelihood of its success. The lawyers can turn to AI tools to help predict likely arguments and decisions that the case could incur by comparing it to previous cases of a similar nature.

It would also be able to delve into the finer details of a defendant's history, together with which it could determine what the likelihood of success might be. What's more, the AI can even provide justified reasons for the case's anticipated unsuccessful outcome. Using this information, the lawyer can decide how best to approach the case, and whether they would be better off not pursuing it.

As a general point, using AI tools in an advisory capacity to support the work of legal professionals has the potential to save both the firm and the client unnecessary time and costs.

Taking on tedious tasks

AI doesn't have to be employed in a complex way, however. It can even be used to resolve small problems that legal professionals face on a daily basis. We all know how frustrating it can be to spend hours trawling through files to locate one specific piece of information. A remnant from many people's school and university days, this is a daily reality for legal professionals. And this task can take a significant toll on a professional's productivity levels.

Can AI help here? The answer; most certainly. For instance, AI toolsets can summarise key points found in mammoth bodies of legal text. Researchers can then read the summaries of these documents to determine whether they are useful, and if they warrant further research.

Of course, we cannot discredit the role of human intervention in this process; lawyers and legal professionals play a central role to ensure that the toolset delivers the highest quality results. To illustrate, humans are needed here to highlight any key points that are missing from the summary. Should the AI miss any central facts or ideas, the user can highlight these and teach the AI software what information it should be prioritising.

This is where the ML capabilities kick in again. Over time, the AI will be able to determine the key points to summarise based on the document's category and human feedback. So, for a researcher needing a brief overview of a sales contract, it might learn to offer a short summary of payment terms.

The uses of AI to automate and simplify tedious tasks like this are endless. Another great example is the ability to review and classify legal documents to make it easier for researchers to locate them and use them for guidance.

By determining patterns in data and analysing how previous documents were categorised, AI algorithms are able to sort and classify new documents that are uploaded. They can also use this store of data to return similar documents if a lawyer is looking for a particular type of document.

If a lawyer is drafting an employment contract and wants to seek direction from past cases, the AI can pull up similar employee contracts from the digital library for comparison. Even better, the AI can highlight any differences between the documents to ensure the lawyer is aware of these and doesn't miss key arguments in the process of drafting.

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Don't get left behind!

If utilised effectively, AI can become an indispensable assistant to practically every legal professional, and ultimately help firms deliver better, faster and more cost-efficient legal services. Those who remain reluctant to adapt and embrace the change, however, risk getting left behind.

It's important to remember that the potential of AI within the legal space goes far beyond the examples mentioned in this piece. Solutions can be tailored to fit the bill of specific organisations and their inhibitions. This often comes down to determining where time and resources are being squandered needlessly, and where this can be resolved by delegating repetitive, costly or time-consuming tasks to AI.

I encourage everyone within the sector to explore the AI toolsets at their disposal, and experiment with ways that they could be integrated into their professional lives. And for those who are unsure where to begin, get in touch with Fountech to request your own personal copy of our legal white paper. ■

ABOUT THE AUTHOR

Nikolas Kairinos is the CEO and Founder of Fountech.ai, a company specialising in the development and delivery of intelligent AI solutions for businesses and organisations.

As the globe turns, so does the axle of tax compliance

It's important to have a strong working knowledge of the obstacles to tax compliance. Pawel Smolarkiewicz looks at how digital transformation is affecting organisations' approach

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It is universally acknowledged that a global tax compliance strategy should be at the forefront of any SAP Central Finance project plan. Among SAP customers, however, tax compliance won't be a chief priority for everyone intending to transition to SAP S/4HANA, by the deadline of December 31st, 2025.

For these customers, this will prove a costly mistake. These days, businesses that neglect the compliance standards set by global tax mandates will find themselves faced with monetary sanctions, expensive audits, diminished cash flow, and broken relationships with suppliers and customers alike.

In fact, failure to comply could even destabilise SAP Central Finance and S/4HANA migrations altogether. In certain geographies, it can deadlock a whole company. To move forward, it's vital to understand that tax compliance must be non-negotiable for any switch to SAP S/4HANA, rather than being reduced to an afterthought or peripheral item.

It's fair to wonder how this might happen; the answer is that tax compliance must be approached as the axle around which the wheel of digital transformation turns. Consequently, it's important to have a strong working knowledge of the obstacles to tax compliance, which may have been overlooked in the past. In doing so, barriers to an organisation's ERP modernisation can be prevented, negating the risk of a wider roll-out getting derailed due to non-compliance.

Businesses seeking a successful migration will have to install an instance of SAP S/4HANA with the Universal Journal and SAP Landscape Transformation (SLT) replication server - the deployment model known as 'SAP Central Finance'. Once this has happened, facilitated by the prime benefit of SAP S/4HANA to run OLAP and OLTP workloads off the same systems simultaneously, businesses can begin transmitting data from other sources.

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Moreover, methodically transitioning businesses process from legacy SAP and non-SAP systems minimises disruption to crucial business functions. Usually, this occurs in stages, over months or years, depending on how complex a company's legacy system landscape is; the legacy systems are retired gradually, as - in time - they become redundant to contemporary SAP S/4HANA capabilities.

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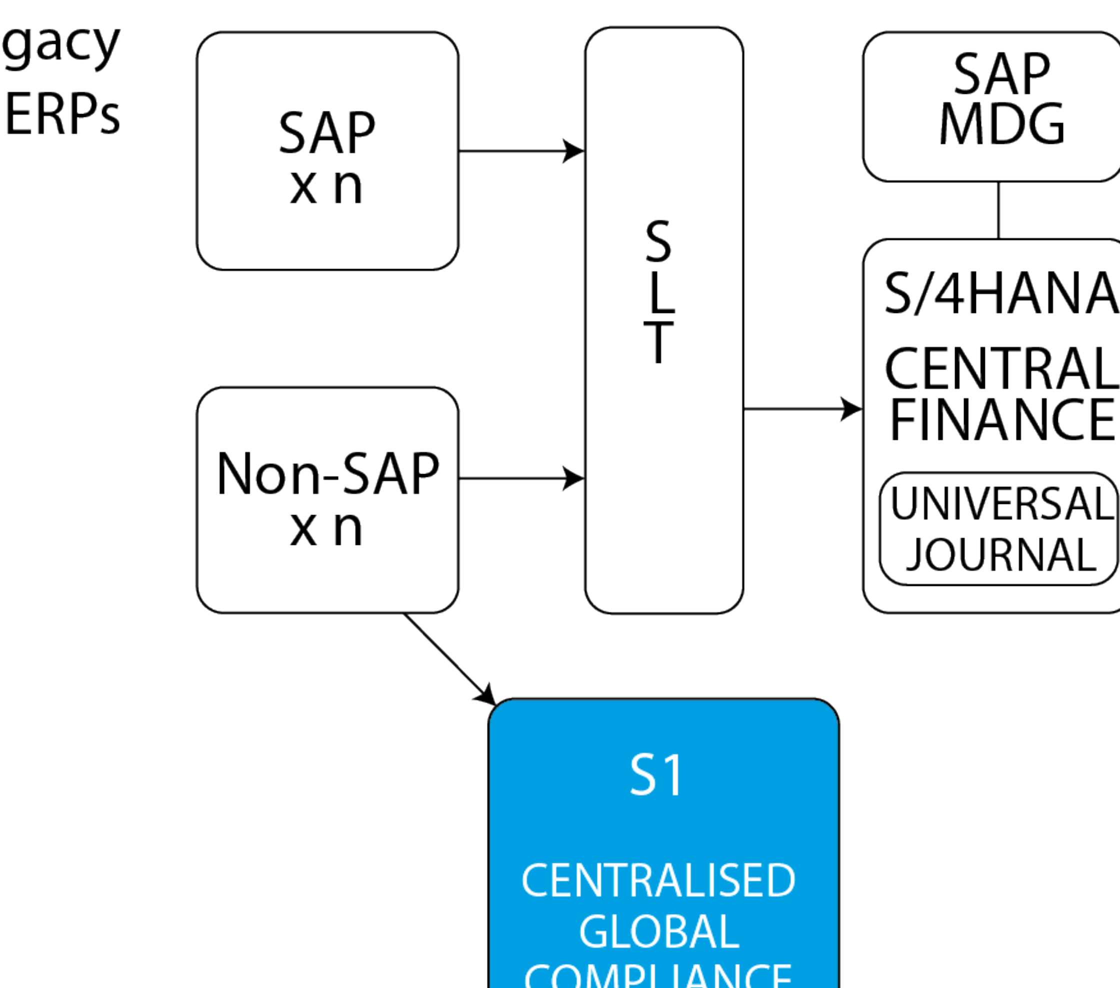
... global tax mandates can be convoluted and are in a perpetual state of flux. On top of this, they can be invasive in a company's business processes - and the repercussions of failing to comply have been starkly highlighted

Tax and SAP S/4HANA Central Finance: a digital revolution

Still, let's not forget that there's another potential roadblock to a successful SAP migration, lurking deep in the shadows of the operations of most businesses: the digital transformation of tax. Across the globe, governments are beginning their own types of digital transformation, endeavouring to regain billions in lost revenue by decreeing real-time tax enforcement, alongside fresh methods of detailed digital reporting.

This is having a tremendous impact on the plans compiled by countless organisations for SAP S/4HANA migration, especially through a staged Central Finance model. What's more, if it isn't, then that has to change - and swiftly. Modern society is equipped with the technology to enforce continuous compliance; as such, an increasing number of governments are playing a more direct role in every transaction a company makes, amending the taxation requirements any time they spot the chance for a strengthened grip on revenue.

After all, governments are not going to stop innovating any time soon, as they carry on making waves to



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increase revenue or reduce the tax gap. If businesses don't keep up, the particulars of digital transformation - including those all-important risks and costs - will spiral out of control.

India and the impact of changing compliance on Core Finance migration

To this end, it's worth looking at the worldwide developments in this space. Recently, India took up the digital tax mantle - the latest country to join the global trend that originated in Latin America of digitally transforming taxation.

We are already seeing different versions of this in Spain and Hungary, as just two examples, and Italy joined them in January of this year. Infamous all over the world for its manufacturing reputation, India's new system could have lasting ramifications on countless global corporations with a footprint in the country.

India commenced its journey by establishing a new committee to interrogate the utility of e-invoicing in a bid to crack down on tax evasion under its Goods and Services Tax (GST) programme. Once established, a failure to comprehend the process - and, in turn, a failure to comply - could lead to financial sanctions, negatively affecting an organisation's cashflow and profit. Relationships with suppliers, customers, and authorities could also be in jeopardy.

This is why it's so vital to examine how governments are updating tax mandates and the consequences of these new measures - and, in turn, why compliance absolutely has to be central to any IT transformation plan. In a nutshell: if India's going to change its tax laws, global businesses in the supply chain need to be aware of this.

Fortunately, technology - especially cloud-based solutions - can isolate the risks linked with the continually-evolving changes in tax mandates and automatically include them 'as-they-happen' in ERP, and disparate systems,

as well as in SAP Central Finance. This is paramount, as the contemporary digital financial core brings with it a fresh set of requirements.

Multi-national corporations must isolate their central systems from perennial regulatory disruption in order to adhere to compliance standards, irrespective of where or how often these mandates might change. Now, there's no doubt that this is the only way that they can carry on doing business in countries governments have made digital tax a priority.

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Keeping up with compliance changes to avoid a Mexican stand-off

Another country worth examining as an example of why compliance is so central to digital transformation is Mexico, which has a clear mandate for keeping companies honest. Failure to comply with Mexico's e-invoicing mandate can bring business in the country to a complete standstill. Shipments end up sitting stagnant at ports and payments to suppliers are never fulfilled.

When selling goods and services into countries where continuous compliance and tax enforcement are becoming increasingly complex, digital transformation of a company's financial core is paramount.

Core financial systems must be protected, through flexibility, from regulatory disruption in order to meet compliance requirements, no matter where or how often mandates might change. Failure to do so will hinder a company's ability to do business in countries where digital tax is championed.

Of course, the Mexican mandate is subject to endless change. If a mandate such as the e-invoicing regulation in Mexico changes during a transition to SAP Central Finance and a business that has rendered compliance a mere afterthought is unable to adapt to it, the ramifications on cashflow and working relationships with suppliers could

be colossal. As such, it's important to have an adaptable system that can react to new and changing mandates - a cornerstone of any migration to SAP S4/HANA.

The process begins with the e-invoice itself (known as a CFDI in Mexico). Previously a paper invoice, the government now requires electronic invoices in a standard XML format. Organisations doing business in Mexico must generate an electronic invoice in this format with all relevant information (tax ID number and description of goods, for example). Once submitted, the shipper receives a unique number called a UUID from the government; once this is generated, a company can ship its goods.

This all happens in real-time. Equally, businesses receiving invoices must validate them with the government, ensuring that the information on the invoice matches the information stored in a government database.

Once this is confirmed, the company can take delivery of its shipment. If it doesn't, the government has visibility of discrepancies and can delay the transmission of goods, in some cases penalising the business in question for submitting erroneous data.

Nonetheless, financial penalties are just one of the many consequences of non-compliance. Delayed or cancelled shipments can quickly lead to frustrated customers and lost revenue. From there, the tax implications themselves can cause headaches, with painful monetary repercussions to top it all off.

Here, as well, e-invoicing compliance is just the tip of the iceberg. An e-archiving mandate necessitates that companies must store their invoices in a specific format, as this is the only way that they can be prepared for electronic audit by the government at any time. The process of cancelling an invoice, only recently created and likely to change at some point, is both complex and critical for remaining compliant.

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Mexico, then, illustrates how governments are mandating enforcement tactics such as e-invoicing and e-archiving to track VAT payments in real time, thereby eliminating fraud and errors that would previously have led to underpayment. This is why it's imperative, when transforming finance systems, to have an adaptable system capable of reacting to new and changing mandates - evidently, the risks of not doing so are not worth it.

The power of the cloud

This is where the value of a complete cloud-focused culture shift becomes clear. A connected, central, cloud compliance solution - backed by continuous support - can provide the isolation from digital tax regulatory change disruption that businesses require to carry out their IT migration unhindered. Of particular note, a centralised compliance solution perfectly complements the SAP Central Finance deployment model - or, in fact, any extended migration project.

To this end, cloud compliance solutions must offer the benefit of being able to address both legacy and digitally transformed systems at the same, with neither at the expense of the other - a non-negotiable capability for successful phased migration.

Bearing in mind the formidable scope of any such IT project and the sensitivity of the data involved for SAP customers moving to S/4HANA, it's most likely that tax compliance will start life on the periphery in migration plans - but this shouldn't be the case.

In order to engineer this with equal parts power and precision, trusted third-party technologies based in the cloud can enable the wheels to keep turning by foregrounding two systems for any transformation: the system for centralising finance functions and that for centralising compliance.

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Notoriously, global tax mandates can be convoluted and are in a perpetual state of flux. On top of this, they can be invasive in a company's business processes - and the repercussions of failing to comply have been starkly highlighted.

Moreover, mandates come attached with the scope to disrupt migration plans, increasing cost and causing delays in the process. For companies that depend on being able to continue selling goods and services into geographies where continuous compliance and tax enforcement are becoming increasingly complex, digital transformation of the financial core is essential - enter cloud technology.

The best approach is for tax compliance to be managed fully in the cloud by a relevant vendor, as this yields continuous compliance updates, investment in maintenance, infrastructure, and innovation that brings savings - not only monetary but also resources, including time and staff.

This is because the delivery of regulatory updates is automated, negating the need for manual intervention every time regulations change. Additionally, there are no nasty surprises for CTOs in terms of an unknown point solution running custom code in another country and delaying their migration to SAP S/4HANA.

Cutting to the heart of tax compliance

It's always going to be the case that, as a subject, tax compliance lends itself much more seamlessly to conversation than execution - but that's no excuse to take things slowly. Undeniably, the roadblocks of transitioning to SAP S/4HANA will be demanding enough without having to contend with compliance in-house in tandem.

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Outsourcing tax compliance to a third-party in the cloud can fix this, isolating systems from ongoing disruption while enabling IT leaders within a business to focus on other crucial steps in the SAP Central Finance to S/4HANA digital transformation journey.

To this end, SAP advises that tax calculations should occur outside the SAP Central Finance system, in a source system before reposting into SAP Central Finance. Here, again, a trusted supplier with a cloud-based solution can silo amendments to tax mandates and automatically include them in Accounts Payable (AP), Accounts Receivable (AR), and disparate ERP systems, as well as in SAP Central Finance, as a business migrates data to the new repository.

Ultimately, in an age of abundant forms of digital transformation, organisations should now approach national tax authorities as key stakeholders in their core business processes. To achieve this, they must keep up with differing formats and continually changing tax compliance requirements.

As a result, the switch to SAP S/4HANA with Central Finance combined with a central modern tax compliance solution should form a portion of every company's odyssey to solve tax for good - perpetually vanquishing compliance headaches. ■

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Peter Drucker always said that his interest in management was an offshoot of his preoccupation with the evolving relationship between people and societal institutions – what he came to call the discipline of social ecology.

For Drucker, social, as opposed to biological, ecology, was about a new, man-made ecology of organisations and institutions. And it had a practical aim: to craft a balance between continuity on one side and change and innovation on the other. By spotting emerging trends, managers could act on and shape these forces to the benefit of wider society.

As usual, Drucker was ahead of the game. But the game has moved on as digital technology reshapes, resizes, speeds up and 'complexifies' the networks that make up the ecology we exist in today.

Interacting in complicated, non-linear, hard-to-predict ways, those forces are stretching the ecology in unexpected directions and dimensions. The complexity scientist Brian Arthur has written of a hidden semiautonomous 'second economy', powered by an external algorithmic intelligence, that is steadily encroaching on the physical economy and the jobs it provides.

As we struggle to make sense of these developments, the concepts of ecology and ecosystems can be doubly helpful. First, they give us a new means of plotting what is happening to organisations and industries as technology dissolves traditional boundaries and forges new links between them. A whole new research literature is growing up to describe and theorise this.

Second, the biological metaphor opens up new avenues for both understanding business as a dynamic, evolving force in society and reframing our thinking about management, replacing the mechanistic, Newtonian assumptions

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that have long dominated. In this view, organisations regain their long-suppressed identity as evolving human organisms rather than engineered machines. The implications for management education, research and development are profound.

Whether natural or social, ecologies can develop pathologies or run out of control; whether we like it or not, they need managing, and in the case of man-made ones, managing them to minimise the bad and maximise the good is a moral duty

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Defining a new paradigm

The first essential in this new world is to establish a common language with robust and widely accepted definitions. For global consultancy McKinsey, an ecosystem is *"a complex network of interconnected businesses that depend on and feed on each other to deliver value for their customers, to the end users, and their key stakeholders."*

Taking it further, in a recent article John Fuller, Michael Jacobides and Martin Reeves speak of multi-entity groups of companies not belonging to a single organisation. They involve networks of shifting, semi-permanent relationships, linked by flows of data, services and money. The relationships combine aspects of competition and collaboration, often involving complementarity between different products and capabilities (for example, smartphones and apps).

Finally, in ecosystems, players co-evolve as they redefine their capabilities and relations to others over time. Clusters, groups of partly competing, partly collaborating small firms in the same area and industry, may have been the first identifiable proto-ecosystems.

Apple's IOS app community (now a multibillion-dollar business) showed how fast an ecosystem could scale from a digitally enabled platform, paving the way for many others.

Mobility, in which cars are one small on-demand component of the business of getting people from A to B, or C to X, is a much-discussed current example along with health, education and other services that meet the basic needs of individuals and organisations.

Over time, McKinsey sees traditional industry groupings and value chains collapsing into a smaller number of *"multitrillion-dollar-large ecosystems with a few large orchestrators, big winners, and a huge shift of wealth and value creation."*

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Yet novel man-made ecosystems bring threats as well as opportunities. Like all major shifts, they create winners and losers. Whether natural or social, ecologies can develop pathologies or run out of control; whether we like it or not, they need managing, and in the case of man-made ones, managing them to minimise the bad and maximise the good is a moral duty.

We already perceive some of the emerging dangers. The network effects that underpin developing ecosystems to the benefit of both consumers and producers drive a self-reinforcing winner-takes-all dynamic that has already resulted in a few huge firms dominating swathes of the digital economy.

The ecological lens tells us that an entity that cannot stop growing at the expense of others is cancer that eventually kills the larger system it is part of. Could the same lens help us to develop smart regulation that would manage network effects without throwing the baby out with the bathwater – allowing the rapid scaling that is intrinsic to its value at the same time as preserving and promoting the vibrancy of a diverse ecosystem?

The challenge for management

What does all this mean for the practice of management in the 21st century? As we have noted, management theory and practice have long been based on a mechanistic view of the economy peopled by utility-maximising individuals working for profit-maximising companies – human robots and organisational machines.

Yet one of the laws of ecology is that there is no free lunch and all debts have to be paid. Human beings with their emotions, aspirations, dreams and idiosyncrasies do not take kindly to being treated as cogs in a machine; the price paid at the organisation level is disengagement, distrust and poor performance and at the level of the individual in stress, unhappiness and unfulfilled potential.

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The rationalist dream of truly scientific management is a mirage. Recall Drucker's definition of management as a 'liberal art' – a far cry from the dry technocratic discipline of management research and education.

What applies at an individual level also holds good as we move up the system's ladder. This is an unfamiliar and challenging territory for most managers. Yet it is at the higher system levels that the greatest prizes beckon.

For example, an economy will function better as a system of incentives, regulations and the social technology of management are aligned with the interests of the broader society – which is manifestly not the case when the stock-market ecology in which large corporations operate is oriented wholly to shareholders at the expense of other stakeholders.

More tangibly, much attention these days focuses on the idea of innovation ecosystems, conceptualised as a kind of man-made evolutionary process. Fast-growing, constantly evolving internet giants such as Amazon, Facebook, Google, Alibaba and Tencent embody this idea. Yet 'analogue' and manufacturing firms are also learning to play on the terrain, leveraging brand and reputation assets to pivot towards ecosystems-based opportunities. Apple, Haier and BMW are good examples.

As in natural ecology, mid-sized and smaller firms can profitably create their own unique niches within the larger ones, using specialisation and deep skills to outflank the data-based, algorithmic brute force of the giants. At the regional level, Silicon Valley is the ur-innovation ecosystem that every country would like to emulate, so far with varying success.

But the examples of Shenzen in China and Tel Aviv in Israel show that epicentres for innovation can be nurtured in very different environments. 'Smart city' initiatives to improve the lives of citizens are springing up everywhere.

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Understanding and building the capabilities to direct these novel entities is a formidable challenge for management. It demands a multi-stakeholder effort – an ecosystem in itself, in which the Drucker Forum is determined to play a part.

Major contributions will also be needed from academia in the shape of both economics departments and business schools, for which exploration of these new areas should provide a huge research impetus.

In the end it is not regulators and bureaucrats who will save the world but innovators and explorers in business, universities and the public sector aligning with society to shape a balanced, dynamic, social ecology for everyone to flourish in, not just wealth for a few – a historic challenge that we cannot afford to flunk. ■

ABOUT THE AUTHOR
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44% of employers value experience more than a degree

There is a global debate about the relevancy of exams. Fresh Student Living explore whether their place in today's education system

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The debate on the relevancy of exams continues, as universities across the globe and politicians alike engage in talks about scrapping exams. With the current Labour Leader, Jeremy Corbyn, recently stating *"We need to prepare children for life, not just for exams"* at the National Education Union's Conference in Liverpool, Fresh Student Living has explored whether exams have a place in today's education system.

Are exams still relevant?

In 2011, Macquarie University in Australia debated whether to get rid of exams completely. They argued that exams fail to develop questioning, independent learners and instead promotes a superficial and inauthentic understanding of subjects.

While exams aim to test knowledge of a subject and have previously been an excellent form of assessment, changing times suggest they may not be as relevant as they once were as they don't always accurately measure capability and skill. In 2012 research found that no-exam university course fuelled a rise in first-class degrees.

Increased concerns about student mental health

With research showing almost 90% of students experience stress, and 77% experiencing anxiety more emphasis has been placed mental health in recent years, as demand for student mental health services has risen 50%.

According to studies, university students are likely to experience high levels of depressive symptoms, which affects how they learn, and impacts when they finish their degrees; meaning their careers and overall lives can be affected long after they have completed their courses.

Experience Vs exams – what do employers really want?

According to an in-depth survey by the Chronicle of Higher Education, 44% of employers place more weight

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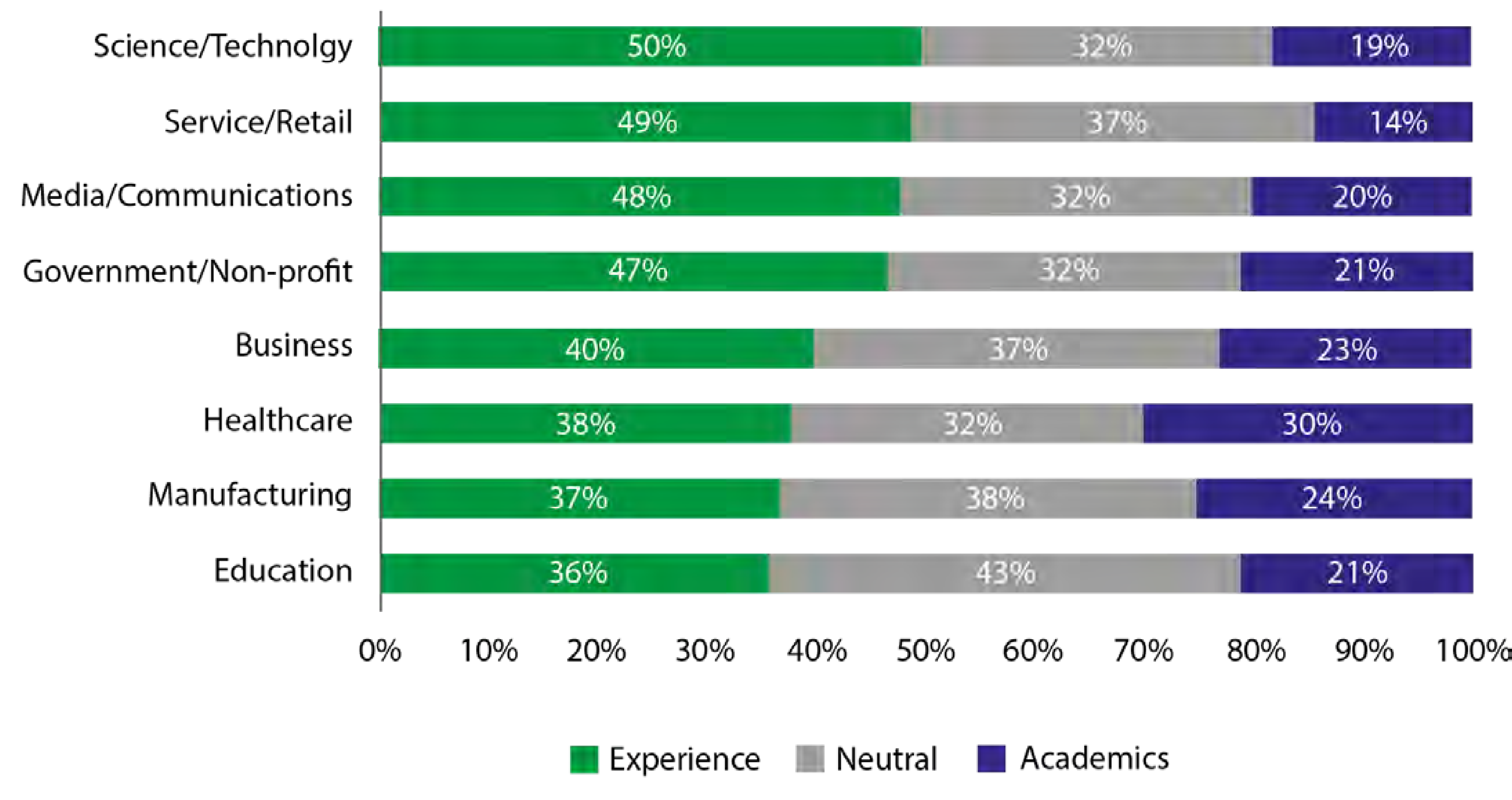
Recent research shows experience outweighs academics in most industries

Experience Vs Academics



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on experience, particularly within industries like science and tech, service and retail along with media and communications.

Attributes that employers value most:

- Internships – 23%
- Employment during uni – 21%
- Degree – 13%

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... many feel that, instead of exams, good assessment programs and coursework are enough to evaluate performance and would provide a balanced, fair evaluation of how well a student can apply their skills to real scenarios

- Volunteer experience – 12%
- Extracurricular activities – 10%
- Relevance of coursework – 8%
- Academics – 8%
- Uni reputation – 5%

Should exams be removed altogether?

Research shows the biggest challenges for students include the transition to university life, coursework deadlines, exams and financial difficulties. In all universities, students are required to meet multiple milestones in terms of learning and knowledge. However, many feel that, instead of exams, good assessment programs and coursework are enough to evaluate performance and would provide a balanced, fair evaluation of how well a student can apply their skills to real scenarios. While exams may not demonstrate all knowledge, they do offer a thorough evaluation of a student's knowledge.

What can students do at university right now to boost their experience?

In theory, education and experience go hand-in-hand. However, there are many things that students can do to proactively boost their expertise to work on their CV instead of solely focusing on the end mark, and further benefit their future career opportunities.

Work experience

A simple but effective way to gain experience in the industry that you want to enter, and the working world in general. For those who are unable to take on a placement, this is a great way to juggle learning and working on the odd day where you do have time and can also provide a foot in the door of a company you may work at in the future.

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Times are changing, with more institutions looking at alternatives to exams to grade students. With this in mind, we look at how exams impact students and their job prospects.

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THE RELEVANCE OF EXAMS

With experts debating their relevance, the need for exams is a hotly debated topic. According to naysayers, exams fail to:

DEVELOP **SELF-SUFFICIENT** LEARNERS

ENCOURAGE **QUESTIONS** IN STUDENTS

PROMOTE AN AUTHENTIC **UNDERSTANDING** OF SUBJECTS

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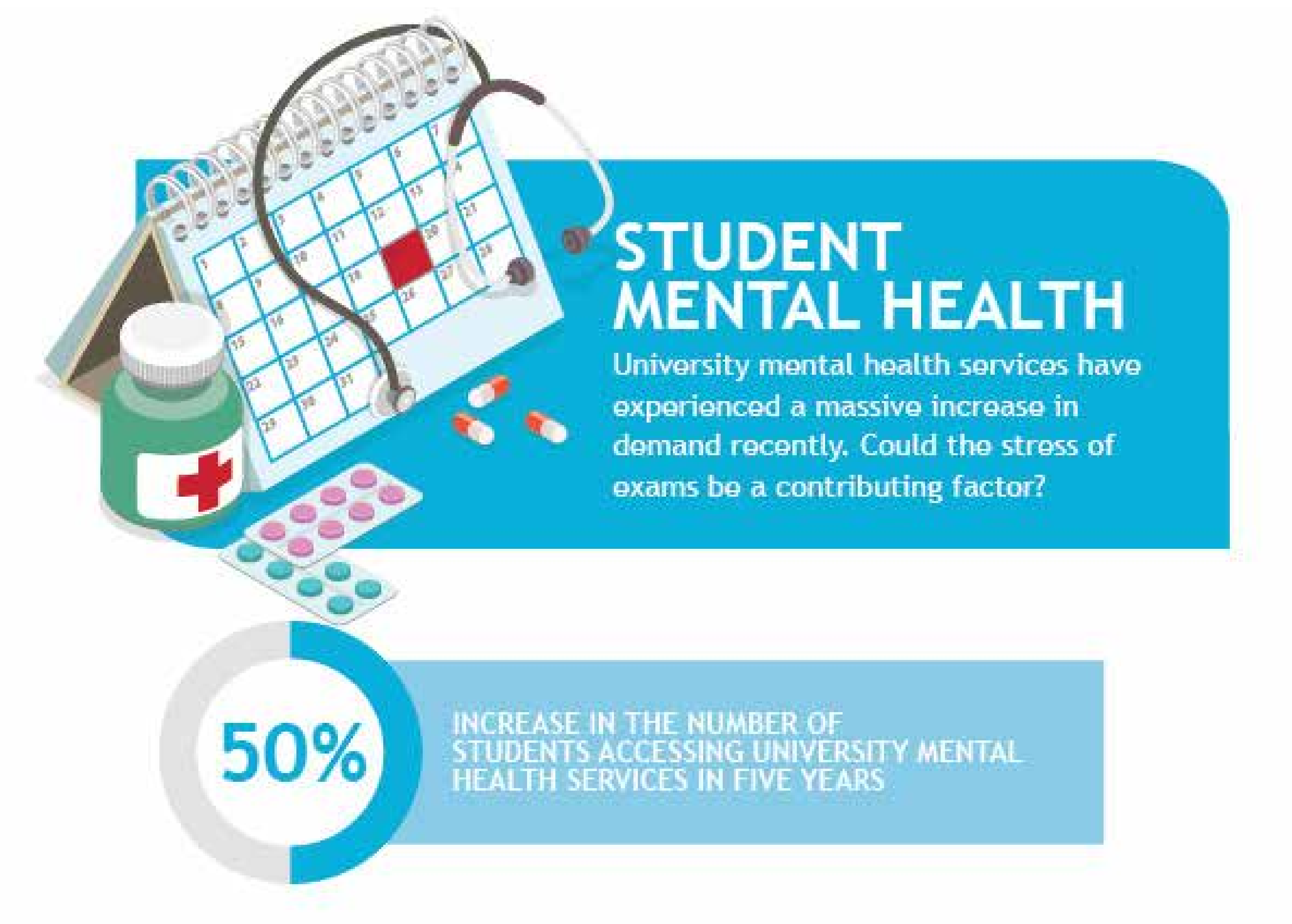

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SOME OF THE BIGGEST CHALLENGES STUDENTS EXPERIENCE:

THE ADVANTAGES OF EXAMS

Exams are used in schools and universities across the world to measure a student's level of knowledge on a particular subject. They also:

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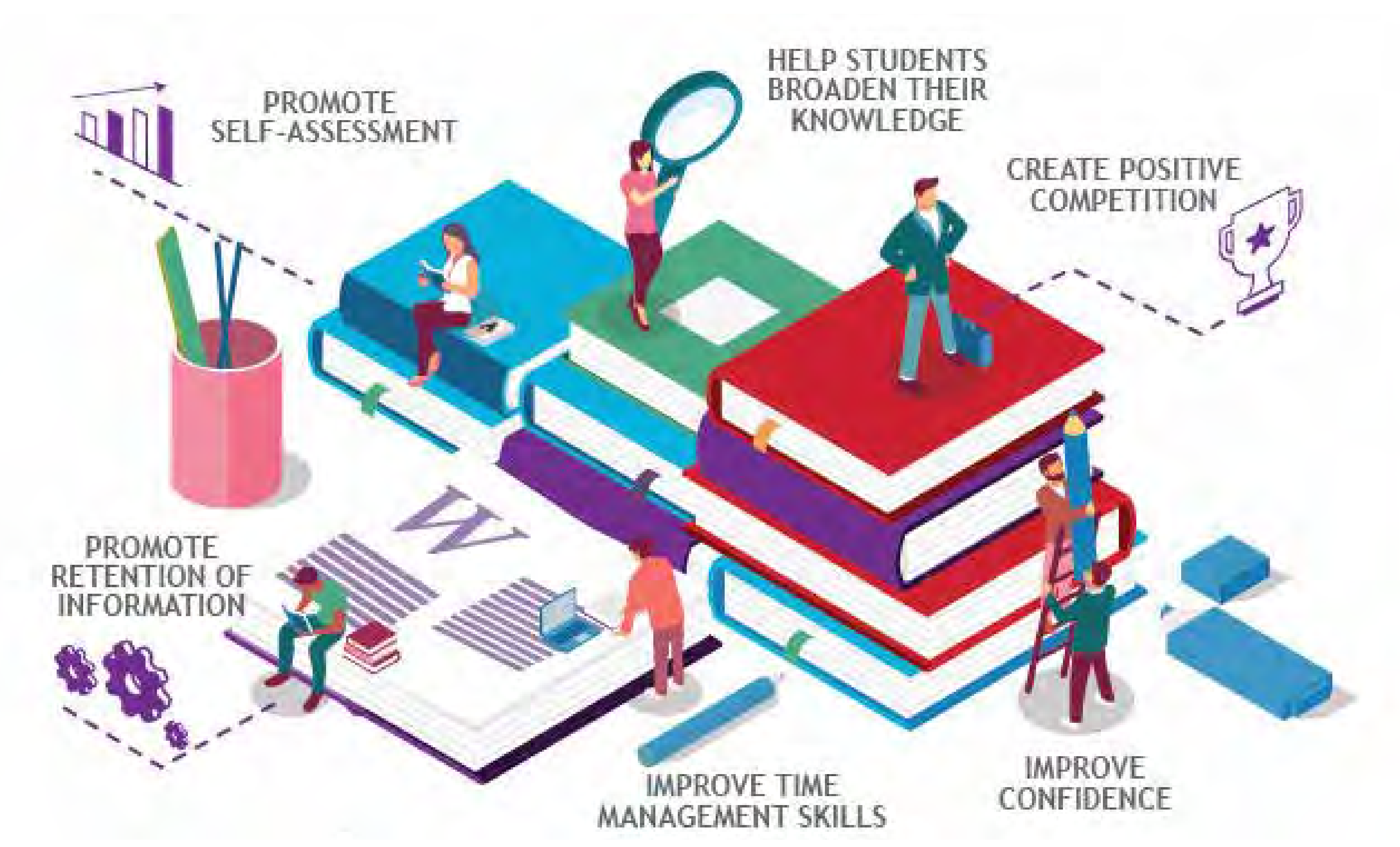

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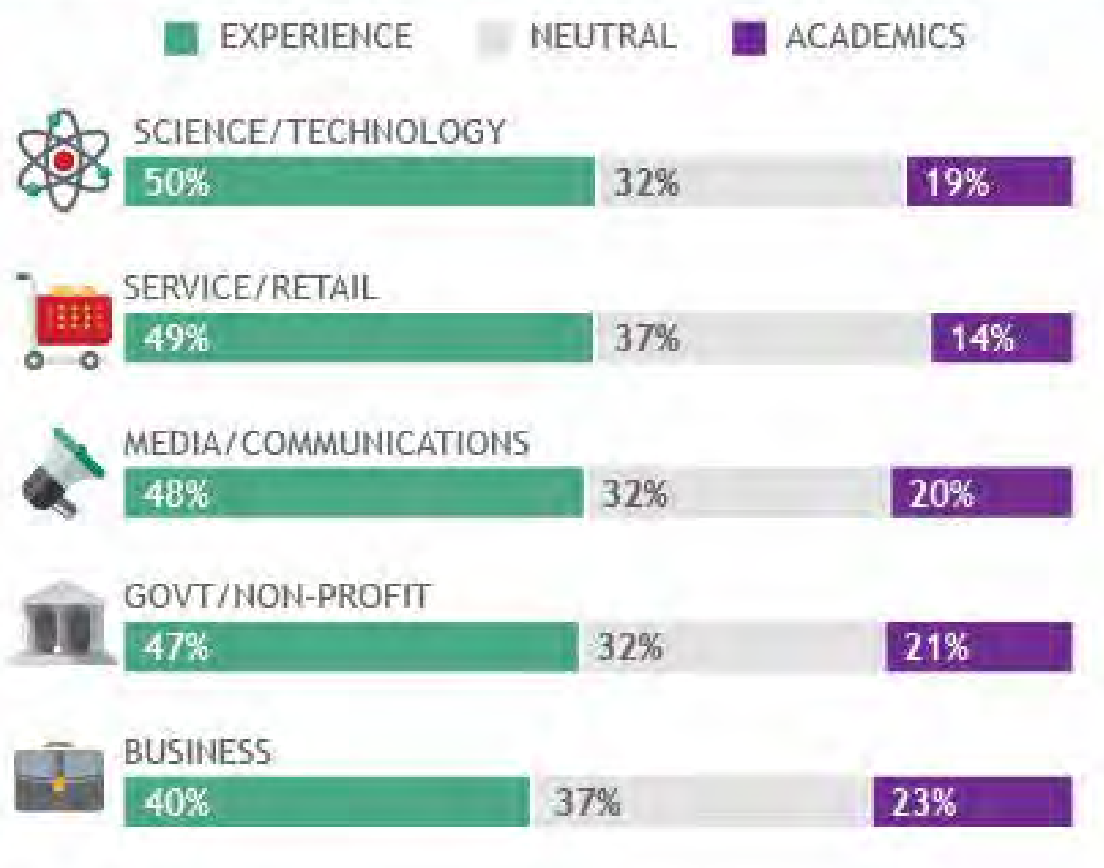

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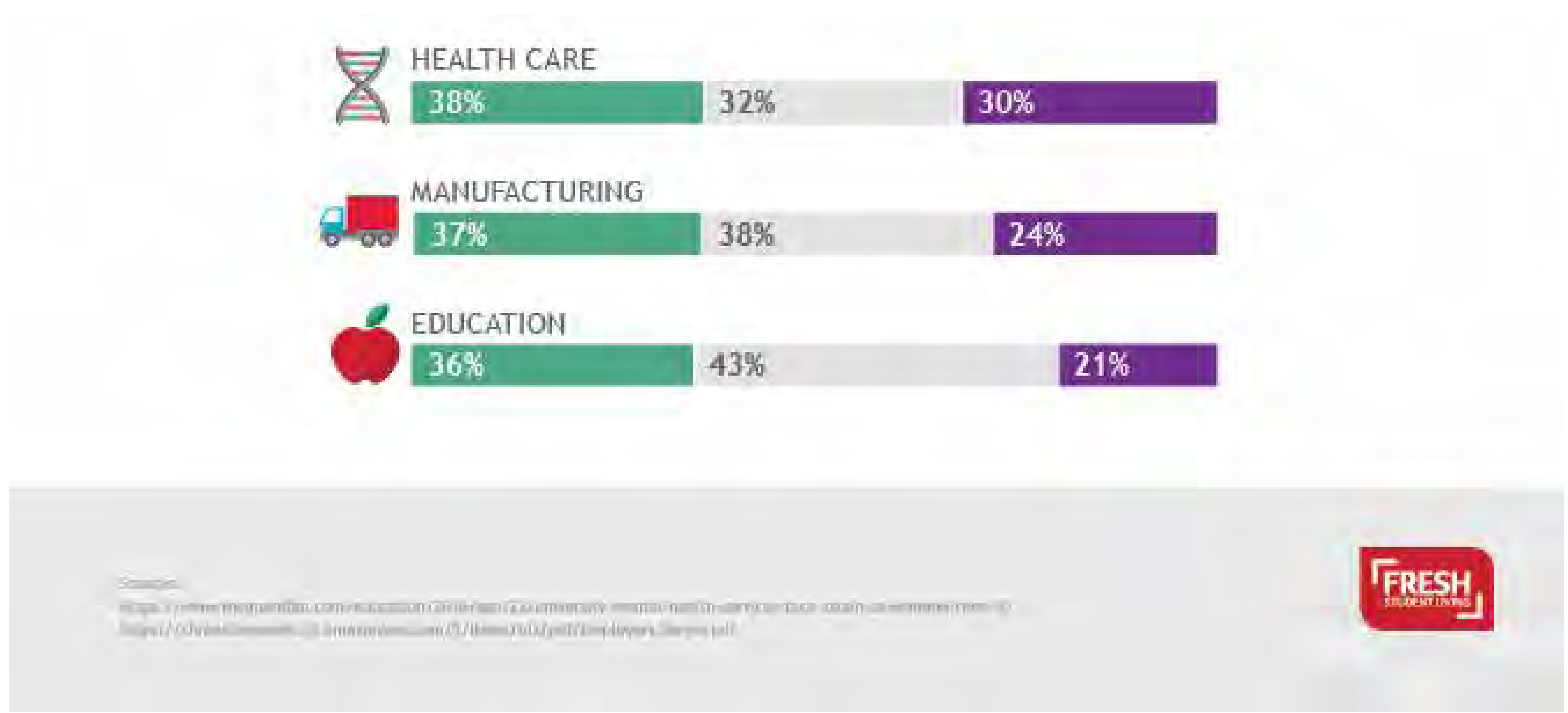

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Internships

While it may not be easy to find one, internships typically last between two and 12 weeks and are sometimes paid. It's possible to obtain one after university but should you want to gain experience before completing your course, out of term time internships are an ideal route and could lead to a job faster following graduation.

Placements

Unlike work experience or internships, placements require more commitment as they typically last for more extended periods. In some very fortunate cases, a placement can result in a guaranteed job following graduation.

Extracurricular activities and volunteer work

Depending on your desired career path extracurricular activities and volunteering experience can either help you to get into the field you want to pursue, as 22% of employers highly value these attributes when looking at potential candidates. ■

ABOUT FRESH STUDENT LIVING

Fresh Student Living is a leading provider of student accommodation offering homes to over 16,000 students in more than 50 towns and cities across the UK. Their philosophy revolves around creating quality student homes as unique as the people who live in them and has resulted in 90% of students rating their time with Fresh Student Living as very satisfied or satisfied.

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